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| NEWS 1 | | Web Page for STN Seminar Schedule - N. America |
| NEWS 2 | JUL 02 | LMEDLINE coverage updated |
| NEWS 3 | JUL 02 | SCISEARCH enhanced with complete author names |
| NEWS 4 | JUL 02 | CHEMCATS accession numbers revised |
| NEWS 5 | JUL 02 | CA/CAplus enhanced with utility model patents from China |
| NEWS 6 | JUL 16 | CAplus enhanced with French and German abstracts |
| NEWS 7 | JUL 18 | CA/CAplus patent coverage enhanced |
| NEWS 8 | JUL 26 | USPATFULL/USPAT2 enhanced with IPC reclassification |
| NEWS 9 | JUL 30 | USGENE now available on STN |
| NEWS 10 | AUG 06 | CAS REGISTRY enhanced with new experimental property tags |
| NEWS 11 | AUG 06 | FSTA enhanced with new thesaurus edition |
| NEWS 12 | AUG 13 | CA/CAplus enhanced with additional kind codes for granted patents |
| NEWS 13 | AUG 20 | CA/CAplus enhanced with CAS indexing in pre-1907 records |
| NEWS 14 | AUG 27 | Full-text patent databases enhanced with predefined patent family display formats from INPADOCDB |
| NEWS 15 | AUG 27 | USPATOLD now available on STN |
| NEWS 16 | AUG 28 | CAS REGISTRY enhanced with additional experimental spectral property data |
| NEWS 17 | SEP 07 | STN AnaVist, Version 2.0, now available with Derwent World Patents Index |
| NEWS 18 | SEP 13 | FORIS renamed to SOFIS |
| NEWS 19 | SEP 13 | INPADOCDB enhanced with monthly SDI frequency |
| NEWS 20 | SEP 17 | CA/CAplus enhanced with printed CA page images from 1967-1998 |
| NEWS 21 | SEP 17 | CAplus coverage extended to include traditional medicine patents |
| NEWS 22 | SEP 24 | EMBASE, EMBAL, and LEMBASE reloaded with enhancements |
| NEWS 23 | OCT 02 | CA/CAplus enhanced with pre-1907 records from Chemisches Zentralblatt |
| NEWS 24 | OCT 19 | BEILSTEIN updated with new compounds |
| NEWS 25 | NOV 15 | Derwent Indian patent publication number format enhanced |
| NEWS 26 | NOV 19 | WPIX enhanced with XML display format |

NEWS EXPRESS 19 SEPTEMBER 2007: CURRENT WINDOWS VERSION IS V8.2,
CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
AND CURRENT DISCOVER FILE IS DATED 19 SEPTEMBER 2007.

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| NEWS LOGIN | Welcome Banner and News Items |
| NEWS IPC8 | For general information regarding STN implementation of IPC 8 |

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=> file caplus

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| FULL ESTIMATED COST | 0.21 | 0.21 |

FILE 'CAPLUS' ENTERED AT 15:58:43 ON 26 NOV 2007
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FILE COVERS 1907 - 26 Nov 2007 VOL 147 ISS 23
FILE LAST UPDATED: 25 Nov 2007 (20071125/ED)

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http://www.cas.org/infopolicy.html

=> e myllymaki/au

| | | |
|---|---|---|
| E1 | 1 | MYLLYMAEKI SARI/AU |
| E2 | 19 | MYLLYMAEKI VESA/AU |
| E3 | 0 | --> MYLLYMAKI/AU |
| E4 | 1 | MYLLYMAKI A/AU |
| E5 | 2 | MYLLYMAKI ARVO/AU |
| E6 | 1 | MYLLYMAKI HANNU/AU |
| E7 | 1 | MYLLYMAKI HILKKA/AU |
| E8 | 1 | MYLLYMAKI J/AU |
| E9 | 2 | MYLLYMAKI JUHANI/AU |
| E10 | 3 | MYLLYMAKI JUKKA/AU |
| E11 | 1 | MYLLYMAKI JUSSI PETRI/AU |
| E12 | 1 | MYLLYMAKI LINDA/AU |

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=> s e2
L1          19 "MYLLYMAEKI VESA"/AU

=> e aksela/au
E1           1     AKSEL VOD L S/AU
E2           2     AKSEL YU Z/AU
E3           0 --> AKSELA/AU
E4         186     AKSELA H/AU
E5          28     AKSELA HELENA/AU
E6           5     AKSELA MAIJA/AU
E7           6     AKSELA R/AU
E8           1     AKSELA RAIMO/AU
E9           1     AKSELA RALMO/AU
E10          1     AKSELA REIGO/AU
E11         46     AKSELA REIJO/AU
E12        201     AKSELA S/AU

=> s e10 or e11
             1 "AKSELA REIGO"/AU
            46 "AKSELA REIJO"/AU
L2          47 "AKSELA REIGO"/AU OR "AKSELA REIJO"/AU

=> dup remove l1 l2
PROCESSING COMPLETED FOR L1
PROCESSING COMPLETED FOR L2
L3          60 DUP REMOVE L1 L2 (6 DUPLICATES REMOVED)

=> s l3 and ionic
L4          19 S L3
L5          41 S L3
        284921 IONIC
           511 IONICS
        285185 IONIC
                 (IONIC OR IONICS)
L6           6 (L4 OR L5) AND IONIC

=> d l6 1-6 ibib abs kwic

L6   ANSWER 1 OF 6  CAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:         2007:54651  CAPLUS
DOCUMENT NUMBER:          146:144557
TITLE:                    Production of starch ethers in ionic liquids
                          in the absence of water
INVENTOR(S):              Myllymaeki, Vesa; Aksela, Reijo
PATENT ASSIGNEE(S):       Kemira Oyj, Finland
SOURCE:                   PCT Int. Appl., 20pp.
                          CODEN: PIXXD2
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.           KIND   DATE        APPLICATION NO.          DATE
     ---------------      ----   --------    --------------------     --------
     WO 2007006848         A1    20070118    WO 2006-FI248            20060712
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
             CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
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GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP,
KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN,
MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU,
SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG,
US, UZ, VC, VN, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,
CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.: FI 2005-752 A 20050714
OTHER SOURCE(S): MARPAT 146:144557

AB Starch ethers are prepared by mixing starch with an **ionic** liquid solvent to dissolve the starch, and then treating the dissolved starch with an etherifying agent in the presence of a base to form a starch ether, and subsequently separating the starch ether from the solution, wherein both the dissoln. and the etherification are carried out in the substantial absence of water.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Production of starch ethers in **ionic** liquids in the absence of water

IN **Myllymaeki, Vesa**; Aksela, Reijo

AB Starch ethers are prepared by mixing starch with an **ionic** liquid solvent to dissolve the starch, and then treating the dissolved starch with an etherifying agent in the presence of. . .

ST starch dissolving **ionic** liq etherification

IT Etherification
**Ionic** liquids
(production of starch ethers in **ionic** liqs. in absence of water)

IT 79917-90-1, [BMIM]Cl
RL: NUU (Other use, unclassified); USES (Uses)
(**ionic** liquid; production of starch ethers in **ionic** liqs. in absence of water)

IT 9005-25-8DP, Starch, ethers
RL: IMF (Industrial manufacture); PREP (Preparation)
(production of starch ethers in **ionic** liqs. in absence of water)

IT 9057-06-1P, Carboxymethyl starch
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
(production of starch ethers in **ionic** liqs. in absence of water)

L6 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:977559 CAPLUS
DOCUMENT NUMBER: 145:337750
TITLE: Water-insoluble polysaccharide-based composite materials for use in paper and board manufacturing
INVENTOR(S): **Myllymaeki, Vesa**; Aksela, Reijo; Sundquist, Anna; Karvinen, Saila Marjatta
PATENT ASSIGNEE(S): Kemira Oyj, Finland
SOURCE: PCT Int. Appl., 70pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| WO 2006097571 | A1 | 20060921 | WO 2006-FI88 | | 20060315 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | | |
| RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | | |
| FI 2005000293 | A | 20060919 | FI 2005-293 | | 20050318 |
| CA 2599423 | A1 | 20060921 | CA 2006-2599423 | | 20060315 |
| PRIORITY APPLN. INFO.: | | | FI 2005-293 | A | 20050318 |
| | | | WO 2006-FI88 | W | 20060315 |

OTHER SOURCE(S): MARPAT 145:337750

AB The invention relates to a composite material based on water-insol. polysaccharide, such as cellulose and chitin. The composite material comprises particles of at least one light scattering material, the surface of which is essentially covered with at least one water-insol. polysaccharide. The invention also relates to a method for preparation of the composite material, and to a paper and board manufacturing process in which the composite material is used as a filler or pigment. Both highly organic products with exceptional heat capacities, as well as cheap high filler products can be manufactured The composite material significantly improves retention of light scattering fillers in the manufacture of paper and board even without the use of sep. retention aids.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IN **Myllymaeki, Vesa**; Aksela, Reijo; Sundquist, Anna; Karvinen, Saila Marjatta

IT Extrusion of plastics and rubbers
Fillers
**Ionic** liquids
Microparticles
Microspheres
Paper
Paperboard
Pigments, nonbiological
Plastic films
(water-insol. polysaccharide-based composite materials for use in paper and board manufacturing)

L6 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN

| | |
|---|---|
| ACCESSION NUMBER: | 2005:638995 CAPLUS |
| DOCUMENT NUMBER: | 143:135160 |
| TITLE: | Starch depolymerization in **ionic** liquid solvents |
| INVENTOR(S): | **Myllymaeki, Vesa**; Aksela, Reijo |
| PATENT ASSIGNEE(S): | Kemira Oyj, Finland |
| SOURCE: | PCT Int. Appl., 21 pp.<br>CODEN: PIXXD2 |
| DOCUMENT TYPE: | Patent |
| LANGUAGE: | English |

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2005066374 | A1 | 20050721 | WO 2005-FI4 | 20050104 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| FI 2004000005 | A | 20050706 | FI 2004-5 | 20040105 |
| FI 116141 | B1 | 20050930 | | |
| CA 2551390 | A1 | 20050721 | CA 2005-2551390 | 20050104 |
| EP 1704259 | A1 | 20060927 | EP 2005-701720 | 20050104 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS | | | | |

PRIORITY APPLN. INFO.: FI 2004-5 A 20040105
WO 2005-FI4 W 20050104

OTHER SOURCE(S): MARPAT 143:135160

AB Starch dissolved in an **ionic** liquid can be depolymd. without acid or base catalyst or enzyme. Starch is selectively depolymd. by mixing with an **ionic** liquid solvent to dissolve the starch, and then treating the dissolved starch by agitating at elevated temperature and for a period for time to effect depolymn. of the starch into desired depolymn. products. For example, all the starch was depolymd. into monomeric products by stirring a mixture of 150 mg of oven-dried native barley starch with 3 mL 1-butyl-3-methylimidazolium chloride solvent for 30 min at 85° and 2h at 150°. Stirring a similar mixture for 30 min at 85° and 2h at 100° gave a product mixture containing monomeric products of depolymd. amylose but amylopectin remained intact (GPC).

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Starch depolymerization in **ionic** liquid solvents

IN **Myllymaeki, Vesa**; Aksela, Reijo

AB Starch dissolved in an **ionic** liquid can be depolymd. without acid or base catalyst or enzyme. Starch is selectively depolymd. by mixing with an **ionic** liquid solvent to dissolve the starch, and then treating the dissolved starch by agitating at elevated temperature and for a.

ST starch depolymn **ionic** liq solvent; butylmethylimidazolium chloride solvent starch depolymn

IT Depolymerization
(selective; starch selective depolymn. in **ionic** liquid solvents)

IT **Ionic** liquids
(solvents; starch selective depolymn. in)

IT Polysaccharides, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

(starch selective depolymn. in **ionic** liquid solvents)

IT 79917-90-1, 1-Butyl-3-methylimidazolium chloride
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent; starch selective depolymn. in **ionic** liquid solvents)

IT 9005-25-8, Starch, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(starch selective depolymn. in **ionic** liquid solvents)

L6 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:523500 CAPLUS
DOCUMENT NUMBER: 143:28326
TITLE: Etherification of cellulose in **ionic** liquid solutions
INVENTOR(S): **Myllymaeki, Vesa**; Aksela, Reijo
PATENT ASSIGNEE(S): Kemira Oyj, Finland
SOURCE: PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2005054298 | A1 | 20050616 | WO 2004-FI730 | 20041202 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| FI 2003001763 | A | 20050604 | FI 2003-1763 | 20031203 |
| FI 116140 | B1 | 20050930 | | |
| CA 2548007 | A1 | 20050616 | CA 2004-2548007 | 20041202 |
| EP 1689788 | A1 | 20060816 | EP 2004-801227 | 20041202 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS | | | | |
| US 2007112185 | A1 | 20070517 | US 2007-581491 | 20070116 |

PRIORITY APPLN. INFO.: FI 2003-1763 A 20031203
WO 2004-FI730 W 20041202

OTHER SOURCE(S): MARPAT 143:28326

AB Cellulose is mixed and dissolved in an **ionic** liquid solvent and the solution is treated with an etherifying agent in the presence of inorg. base to form a cellulose ether, which is subsequently separated from the solution

The dissoln. and the etherification are carried out in the absence of organic base and in the substantial absence of H2O. Microwave irradiation and/or pressure can be applied to assist in dissoln. and etherification. Thus, 50 mg cellulose was dissolved in 5 g 1-butyl-3-methylimidazolium chloride (m. 60°) with the aid of microwaves to give 1% solution ClCH2CO2H (2.05 equiv) was added to the solution followed by 3.25 equiv of solid NaOH,

the reaction mixture was heated for 2 h at 100° under microwave radiation and the resulting CM-cellulose was precipitated with MeOH, washed with MeOH and 80% aqueous MeOH, and dried.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Etherification of cellulose in **ionic** liquid solutions

IN **Myllymaeki, Vesa**; Aksela, Reijo

AB Cellulose is mixed and dissolved in an **ionic** liquid solvent and the solution is treated with an etherifying agent in the presence of inorg. base to form a. . .

ST cellulose etherification **ionic** liq solvent microwave; butylmethylimidazolium chloride solvent CM cellulose manuf; chloroacetic acid etherification cellulose butylmethylimidazolium chloride solvent

IT Etherification
**Ionic** liquids
(etherification of cellulose in **ionic** liquid solution)

IT Microwave
(etherification of cellulose in **ionic** liquid solution in presence of)

IT 9004-32-4P, CM cellulose sodium salt
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(etherification of cellulose in **ionic** liquid solution)

IT 9004-34-6, Cellulose, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification of cellulose in **ionic** liquid solution)

IT 79-11-8, Chloroacetic acid, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification of cellulose; etherification of cellulose in **ionic** liquid solution)

IT 79917-90-1, 1-Butyl-3-methylimidazolium chloride
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent; etherification of cellulose in **ionic** liquid solution)

L6 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:239036 CAPLUS

DOCUMENT NUMBER: 142:299721

TITLE: Esterification of starch under microwave irradiation and pressure

INVENTOR(S): **Myllymaeki, Vesa**; Aksela, Reijo

PATENT ASSIGNEE(S): Kemira Oyj, Finland

SOURCE: PCT Int. Appl., 25 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2005023873 | A1 | 20050317 | WO 2004-FI523 | 20040910 |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,

TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

| | | | | |
|---|---|---|---|---|
| FI 2003001301 | A | 20050312 | FI 2003-1301 | 20030911 |
| FI 116142 | B1 | 20050930 | | |
| CA 2533553 | A1 | 20050317 | CA 2004-2533553 | 20040910 |
| EP 1664125 | A1 | 20060607 | EP 2004-767037 | 20040910 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK | | | | |
| BR 2004013432 | A | 20061010 | BR 2004-13432 | 20040910 |
| US 2007073051 | A1 | 20070329 | US 2006-566975 | 20061207 |

PRIORITY APPLN. INFO.: FI 2003-1301 A 20030911
WO 2004-FI523 W 20040910

OTHER SOURCE(S): MARPAT 142:299721

AB An organic starch ester is prepared by mixing a starch material, such as natural starch or hydrolyzed starch, with an **ionic** liquid solvent to dissolve the starch, and then treating the dissolved starch with an organic esterifying agent, such as C1-11 carboxylic acid, to form an organic starch ester, and subsequently separating the organic starch ester from the solution by adding a non-solvent , such as alcs., ketones, and acetonitrile, to the starch ester solution Microwave irradiation and/or pressure can be applied to assist the dissoln. and esterification. Thus, native barely starch was dissolved in **ionic** 1-butyl-3-methylimidazolium chloride and reacted with acetic anhydride, followed by quenching with ethanol to receive starch acetate.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IN **Myllymaeki, Vesa**; Aksela, Reijo

AB An organic starch ester is prepared by mixing a starch material, such as natural starch or hydrolyzed starch, with an **ionic** liquid solvent to dissolve the starch, and then treating the dissolved starch with an organic esterifying agent, such as C1-11. . . Microwave irradiation and/or pressure can be applied to assist the dissoln. and esterification. Thus, native barely starch was dissolved in **ionic** 1-butyl-3-methylimidazolium chloride and reacted with acetic anhydride, followed by quenching with ethanol to receive starch acetate.

L6 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:158715 CAPLUS
DOCUMENT NUMBER: 142:242565
TITLE: Dissolution and delignification of lignocellulosic materials with **ionic** liquid solvent under microwave irradiation
INVENTOR(S): **Myllymaeki, Vesa**; Aksela, Reijo
PATENT ASSIGNEE(S): Kemira Oyj, Finland
SOURCE: PCT Int. Appl., 25 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| WO 2005017001 | A1 | 20050224 | WO 2004-FI476 | 20040813 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| FI 2003001156 | A | 20050216 | FI 2003-1156 | 20030815 |
| FI 115835 | B1 | 20050729 | | |
| CA 2532989 | A1 | 20050224 | CA 2004-2532989 | 20040813 |
| EP 1654307 | A1 | 20060510 | EP 2004-742219 | 20040813 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK | | | | |
| BR 2004013435 | A | 20061010 | BR 2004-13435 | 20040813 |
| PRIORITY APPLN. INFO.: | | | FI 2003-1156 A | 20030815 |
| | | | WO 2004-FI476 W | 20040813 |

OTHER SOURCE(S): MARPAT 142:242565

AB Wood, straw, and other natural lignocellulosic materials can be dissolved in an **ionic** liquid solvent under microwave irradiation and/or under pressure, and cellulose and other organic compds., such as lignin and extractives, can also be separated from the solution by precipitating with non-solvent , such as water, alcs., ketones, and ethers, of cellulose. Thus, plywood sawdust was dissolved in 1-butyl-3-methyl-imidazolium chloride under microwave irradiation

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Dissolution and delignification of lignocellulosic materials with **ionic** liquid solvent under microwave irradiation

IN **Myllymaeki, Vesa**; Aksela, Reijo

AB Wood, straw, and other natural lignocellulosic materials can be dissolved in an **ionic** liquid solvent under microwave irradiation and/or under pressure, and cellulose and other organic compds., such as lignin and extractives, can. . .

ST dissoln delignification lignocellulosic **ionic** liq solvent microwave irradn; plywood sawdust wood straw butylmethylimidazolium chloride dissoln microwave irradn

IT Wood
(chips; dissoln. and delignification of lignocellulosic materials with **ionic** liquid solvent under microwave irradiation)

IT Dissolution
Straw
Wood
(dissoln. and delignification of lignocellulosic materials with **ionic** liquid solvent under microwave irradiation)

IT Solvents
(**ionic**, liquid; dissoln. and delignification of lignocellulosic materials with **ionic** liquid solvent under microwave irradiation)

IT Microwave
(irradiation; dissoln. and delignification of lignocellulosic materials with **ionic** liquid solvent under microwave irradiation)

IT Wood boards
(plywood, sawdust; dissoln. and delignification of lignocellulosic materials with **ionic** liquid solvent under microwave irradiation)
IT Sawdust
(plywood; dissoln. and delignification of lignocellulosic materials with **ionic** liquid solvent under microwave irradiation)
IT Wood
(soft; dissoln. and delignification of lignocellulosic materials with **ionic** liquid solvent under microwave irradiation)
IT Alcohols, uses
Ethers, uses
Ketones, uses
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; dissoln. and delignification of lignocellulosic materials with **ionic** liquid solvent under microwave irradiation)
IT 9004-34-6P, Cellulose, preparation 9005-53-2P, Lignin, preparation
RL: PUR (Purification or recovery); PREP (Preparation)
(dissoln. and delignification of lignocellulosic materials with **ionic** liquid solvent under microwave irradiation)
IT 79917-90-1, 1-Butyl-3-methyl-imidazolium chloride
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; dissoln. and delignification of lignocellulosic materials with **ionic** liquid solvent under microwave irradiation)

=> file stng

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| FULL ESTIMATED COST | 28.13 | 28.34 |

| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| CA SUBSCRIBER PRICE | -4.68 | -4.68 |

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| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| FULL ESTIMATED COST | 0.06 | 28.40 |

| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| CA SUBSCRIBER PRICE | 0.00 | -4.68 |

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FILE COVERS 1907 - 26 Nov 2007 VOL 147 ISS 23
FILE LAST UPDATED: 25 Nov 2007 (20071125/ED)



```
=> e swatloski/au
E1            1     SWATLING D K/AU
E2            5     SWATLING DONALD K/AU
E3            0 --> SWATLOSKI/AU
E4            1     SWATLOSKI R A/AU
E5            3     SWATLOSKI R P/AU
E6           84     SWATLOSKI RICHARD P/AU
E7            3     SWATLOSKI RICHARD PATRICK/AU
E8            2     SWATLOSKI ROBERT/AU
E9            2     SWATLOSKI ROBERT A/AU
E10           1     SWATMAN C C/AU
E11           2     SWATMAN DAVID R/AU
E12           1     SWATMAN LESLIE/AU

=> s e4-e7
              1 "SWATLOSKI R A"/AU
              3 "SWATLOSKI R P"/AU
             84 "SWATLOSKI RICHARD P"/AU
              3 "SWATLOSKI RICHARD PATRICK"/AU
L7           91 ("SWATLOSKI R A"/AU OR "SWATLOSKI R P"/AU OR "SWATLOSKI RICHARD
                P"/AU OR "SWATLOSKI RICHARD PATRICK"/AU)

=> s l7 and "ionic liquid"
         284921 "IONIC"
            511 "IONICS"
         285185 "IONIC"
                  ("IONIC" OR "IONICS")
         800777 "LIQUID"
         138530 "LIQUIDS"
         904338 "LIQUID"
                  ("LIQUID" OR "LIQUIDS")
        1105042 "LIQ"
         104871 "LIQS"
        1145172 "LIQ"
                  ("LIQ" OR "LIQS")
        1588658 "LIQUID"
                  ("LIQUID" OR "LIQ")
          11079 "IONIC LIQUID"
                  ("IONIC"(W)"LIQUID")
L8           83 L7 AND "IONIC LIQUID"
```

=> s l8 and cellulose
360710 CELLULOSE
4428 CELLULOSES
361213 CELLULOSE
(CELLULOSE OR CELLULOSES)
L9 26 L8 AND CELLULOSE

=> d l9 1-26 ibib kwic

L9 ANSWER 1 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2007:681891 CAPLUS
DOCUMENT NUMBER: 147:202400
TITLE: Sensor technologies based on a **cellulose** supported platform
AUTHOR(S): Poplin, Jane Holly; **Swatloski, Richard P.**; Holbrey, John D.; Spear, Scott K.; Metlen, Andreas; Gratzel, Michael; Nazeeruddin, Mohammad K.; Rogers, Robin D.
CORPORATE SOURCE: Department of Chemistry and Center for Green Manufacturing, The University of Alabama, Tuscaloosa, AL, 35487, USA
SOURCE: Chemical Communications (Cambridge, United Kingdom) (2007), (20), 2025-2027
CODEN: CHCOFS; ISSN: 1359-7345
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Sensor technologies based on a **cellulose** supported platform
AU Poplin, Jane Holly; **Swatloski, Richard P.**; Holbrey, John D.; Spear, Scott K.; Metlen, Andreas; Gratzel, Michael; Nazeeruddin, Mohammad K.; Rogers, Robin D.
AB A simple approach to sensor development based on encapsulating a probe mol. in a **cellulose** support followed by regeneration from an **ionic liquid** solution is demonstrated here by the codissoln. of **cellulose** and 1-(2-pyridylazo)-2-naphthol in 1-butyl-3-methylimidazolium chloride followed by regeneration with water to form strips which exhibit a proportionate (1: 1) response. . .
ST sensor technol **cellulose** supported platform
IT Colorimetric indicators
Spectrophotometry
(mercury determination in water by spectrophotometry with indicator-**cellulose** composite)
IT Encapsulation
**Ionic liquids**
Polymer-supported reagents
(sensor technologies based on **cellulose** supported platform for encapsulation of indicators)
IT 7732-18-5, Water, analysis
RL: AMX (Analytical matrix); ANST (Analytical study)
(mercury determination in water by spectrophotometry with indicator-**cellulose** composite)
IT 7439-97-6, Mercury, analysis
RL: ANT (Analyte); ANST (Analytical study)
(mercury determination in water by spectrophotometry with indicator-

**cellulose** composite)

IT 85-85-8, 1-(2-Pyridylazo)-2-naphthol 403790-50-1
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(mercury determination in water by spectrophotometry with indicator-**cellulose** composite)

IT 9004-34-6, **Cellulose**, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(sensor technologies based on **cellulose** supported platform for encapsulation of indicators)

IT 79917-90-1, 1-Butyl-3-methylimidazolium chloride
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(sensor technologies based on **cellulose** supported platform for encapsulation of indicators)

L9 ANSWER 2 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2007:10320 CAPLUS
DOCUMENT NUMBER: 147:450565
TITLE: Can **ionic liquids** dissolve wood? Processing and analysis of lignocellulosic materials with 1-n-butyl-3-methylimidazolium chloride
AUTHOR(S): Fort, Diego A.; Remsing, Richard C.; **Swatloski, Richard P.**; Moyna, Patrick; Moyna, Guillermo; Rogers, Robin D.
CORPORATE SOURCE: Facultad de Quimica, Universidad de la Republica, Montevideo, 11800, Urug.
SOURCE: Green Chemistry (2007), 9(1), 63-69
CODEN: GRCHFJ; ISSN: 1463-9262
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Can **ionic liquids** dissolve wood? Processing and analysis of lignocellulosic materials with 1-n-butyl-3-methylimidazolium chloride

AU Fort, Diego A.; Remsing, Richard C.; **Swatloski, Richard P.**; Moyna, Patrick; Moyna, Guillermo; Rogers, Robin D.

AB The bulk of the **cellulose** currently employed by industry is isolated from wood through Kraft pulping, a process which traditionally involves a barrage of environmentally. . . novel alternative approach for the processing of lignocellulosic materials that relies on their solubility in solvent systems based on the **ionic liquid** (IL) 1-n-butyl-3-methylimidazolium chloride ([C4mim]Cl). Dissoln. profiles for woods of different hardness are presented, making emphasis on the direct anal. of. . . material and lignin content in the resulting liquors by means of conventional 13C NMR techniques. The authors also show that **cellulose** can be readily reconstituted from the IL-based wood liquors in fair yields by the addition of a variety of precipitating. . . in this manner is virtually free of lignin and hemicellulose and has characteristics that are comparable to those of pure **cellulose** samples subjected to similar processing conditions.

ST wood lignocellulose dissoln butylmethylimidazolium chloride **ionic liq**

IT Wood
(eucalyptus; processing of lignocellulosic materials by dissoln. in (butyl)methylimidazolium chloride **ionic liquid**)

IT Wood
(oak; processing of lignocellulosic materials by dissoln. in (butyl)methylimidazolium chloride **ionic liquid**)
IT Wood
(pine; processing of lignocellulosic materials by dissoln. in (butyl)methylimidazolium chloride **ionic liquid**)
IT Wood
(poplar; processing of lignocellulosic materials by dissoln. in (butyl)methylimidazolium chloride **ionic liquid**)
IT **Ionic liquids**
Pulping
(processing of lignocellulosic materials by dissoln. in (butyl)methylimidazolium chloride **ionic liquid**)
IT 75-05-8, Acetonitrile, uses 75-09-2, Dichloromethane, uses 9004-34-6, **Cellulose**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(processing of lignocellulosic materials by dissoln. in (butyl)methylimidazolium chloride **ionic liquid**)
IT 11132-73-3, Lignocellulose
RL: PRP (Properties)
(processing of lignocellulosic materials by dissoln. in (butyl)methylimidazolium chloride **ionic liquid**)
IT 9005-53-2, Lignin, processes 9034-32-6, Hemicellulose
RL: REM (Removal or disposal); PROC (Process)
(processing of lignocellulosic materials by dissoln. in (butyl)methylimidazolium chloride **ionic liquid**)

L9 ANSWER 3 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:1215073 CAPLUS
DOCUMENT NUMBER: 147:450541
TITLE: Preparation of magnetic **cellulose** composites using **ionic liquids**
AUTHOR(S): **Swatloski, Richard P.**; Holbrey, John D.; Weston, James L.; Rogers, Robin D.
CORPORATE SOURCE: Department of Chemistry, Center for Green Manufacturing, The University of Alabama, Tuscaloosa, AL, 35487, USA
SOURCE: Chimica Oggi (2006), 24(2), 31-32, 34-35
CODEN: CHOGDS; ISSN: 0392-839X
PUBLISHER: Tekno Scienze
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
TI Preparation of magnetic **cellulose** composites using **ionic liquids**
AU **Swatloski, Richard P.**; Holbrey, John D.; Weston, James L.; Rogers, Robin D.
AB **Cellulose**-magnetite composites have been prepared by suspension and dispersion of magnetite particles in a homogeneous **ionic liquid** solution of **cellulose**, followed by regeneration into water, enabling the preparation of magnetically responsive films, floes, fibers, or beads. The materials prepared were. . .
ST magnetic **cellulose** composite **ionic liq** prepn property
IT Dispersion (of materials)
Encapsulation

**Ionic liquids**
Magnetic materials
Particle size
Polymer morphology
Remanence
Suspensions
Thermal stability
(preparation of magnetic **cellulose** composites using **ionic liqs.** by suspension and dispersion of magnetite particles and characterization of composites)

IT Paramagnetism
(superparamagnetism; preparation of magnetic **cellulose** composites using **ionic liqs.** by suspension and dispersion of magnetite particles and characterization of composites)

IT 79917-90-1, 1-Butyl-3-methylimidazolium chloride
RL: TEM (Technical or engineered material use); USES (Uses)
(**ionic liquid**; preparation of magnetic **cellulose** composites using **ionic liqs.** by suspension and dispersion of magnetite particles and characterization of composites)

IT 1309-38-2, Magnetite, uses
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(preparation of magnetic **cellulose** composites using **ionic liqs.** by suspension and dispersion of magnetite particles and characterization of composites)

IT 9004-34-6, **Cellulose**, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
(preparation of magnetic **cellulose** composites using **ionic liqs.** by suspension and dispersion of magnetite particles and characterization of composites)

L9 ANSWER 4 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:1187097 CAPLUS
DOCUMENT NUMBER: 147:236580
TITLE: Keynote address: new solvent for **cellulose** extrusion
AUTHOR(S): Broughton, Roy; Wang, Weijun; Shen, Guanglin; Farag, Ramsis; **Swatloski, Richard P.**; Rogers, Robin D.
CORPORATE SOURCE: Auburn University, Auburn, AL, USA
SOURCE: Proceedings - Beltwide Cotton Conferences (2005) 3291/1-3291/5
CODEN: PCOCEN; ISSN: 1059-2644
PUBLISHER: National Cotton Council
DOCUMENT TYPE: Journal; (computer optical disk)
LANGUAGE: English
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Keynote address: new solvent for **cellulose** extrusion
AU Broughton, Roy; Wang, Weijun; Shen, Guanglin; Farag, Ramsis; **Swatloski, Richard P.**; Rogers, Robin D.
AB A variety of **celluloses** have been dissolved in the **ionic liquid** 1-butyl-3-methylimidazolium chloride. The solns. were extruded in a dry-jet, wet-spinning process using water as a coagulation bath to produce a. . . having a tenacity of 2.0-4.4 g/denier (1.8-4.0 cN/dtex) and a breaking elongation of 4-20% depending on the extrusion

conditions. This **ionic liquid** appears to be versatile as a **cellulose** extrusion solvent with minimal polymer degradation As none of the extrusion, coagulation, and drawing conditions have been optimized, the authors conclude that this new solvent has significant potential for the manufacture of regenerated **cellulose** fibers.

ST **ionic liq** solvent extrusion regenerated **cellulose** fiber; butylmethylimidazolium chloride solvent spinning regenerated **cellulose** fiber

IT **Cellulose** pulp
Cotton fibers
(**ionic liquid** solvent for extrusion of regenerated **cellulose** fibers from)

IT Elongation at break
Tenacity
Young's modulus
(of regenerated **cellulose** fibers spun from **ionic liquid** solvent)

IT **Ionic liquids**
(solvents for extrusion of regenerated **cellulose** fibers)

IT 79917-90-1, 1-Butyl-3-methylimidazolium chloride
RL: NUU (Other use, unclassified); USES (Uses)
(**ionic liquid** solvent for extrusion of regenerated **cellulose** fibers)

L9 ANSWER 5 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:1158863 CAPLUS
DOCUMENT NUMBER: 147:119949
TITLE: Effects of MAPP as coupling agent on the performance of regenerated **cellulose** film reinforced polypropylene composites
AUTHOR(S): Haque, A.; Mobley, C.; Daly, D. T.; Rogers, R. D.; **Swatloski, R. P.**; Ramasetty, A.
CORPORATE SOURCE: Department of Aerospace Engineering and Mechanics, The University of Alabama, Tuscaloosa, AL, 35487, USA
SOURCE: Proceedings of the American Society for Composites, Technical Conference (2006), 21st, 272/1-272/15
CODEN: PAMTEG; ISSN: 1084-7243
PUBLISHER: DEStech Publications, Inc.
DOCUMENT TYPE: Journal; (computer optical disk)
LANGUAGE: English
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Effects of MAPP as coupling agent on the performance of regenerated **cellulose** film reinforced polypropylene composites

AU Haque, A.; Mobley, C.; Daly, D. T.; Rogers, R. D.; **Swatloski, R. P.**; Ramasetty, A.

AB In this paper regenerated **cellulose** films were investigated for possible reinforcement in thermoplastic polypropylene resin. The pulp-based **cellulose** films were processed using **ionic liqs.** (ILs) with maleic anhydride polypropylene (MAPP) as a compatibilizer. These regenerated compatible **cellulose** films were incorporated in polypropylene resin to process bio-polymer matrix laminate composites. To improve compatibility of polypropylene resin and **cellulose** film, various weight percentages of MAPP binder were incorporated into **cellulose** film to achieve strong bonding and optimum stress transfer at the interface. Initially, the mech. properties of **cellulose** (CE) film and neat polypropylene (PP1, PP2) resins

were determined as baseline data. The effects of various MAPP concns. on tensile, flexural, and interlaminar shear properties, moisture absorption and m.p. of **cellulose**/polypropylene (CE/PP) composites were investigated. Microstructural examns. were conducted using optical and SEM to study the structure and fracture surface of. . . Reasonable agreements were observed between the exptl. and theor. predicted data for well bonded specimens. The fracture anal. showed that **cellulose** film with 22% MAPP concentration provides excellent adhesion between neat PP resin and CE film reinforcement. Improved adhesion between CE. . .

ST polypropylene **cellulose** laminated composite prepn property; **cellulose** film polypropylene laminated composite maleated polypropylene coupler

IT Cellophane
Coupling agents
Elongation at break
Melting point
Stress-strain relationship
Tensile strength
Young's modulus
(effects of maleated polypropylene as coupling agent on performance of regenerated **cellulose** film-reinforced laminated polypropylene composites)

IT Laminated plastics, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(effects of maleated polypropylene as coupling agent on performance of regenerated **cellulose** film-reinforced laminated polypropylene composites)

IT Polymer morphology
(fracture-surface; effects of maleated polypropylene as coupling agent on performance of regenerated **cellulose** film-reinforced laminated polypropylene composites)

IT Absorption
(of water; effects of maleated polypropylene as coupling agent on performance of regenerated **cellulose** film-reinforced laminated polypropylene composites)

IT Fracture surface morphology
(polymeric; effects of maleated polypropylene as coupling agent on performance of regenerated **cellulose** film-reinforced laminated polypropylene composites)

IT Stress, mechanical
(yield; effects of maleated polypropylene as coupling agent on performance of regenerated **cellulose** film-reinforced laminated polypropylene composites)

IT 7732-18-5, Water, properties
RL: PRP (Properties)
(absorption; effects of maleated polypropylene as coupling agent on performance of regenerated **cellulose** film-reinforced laminated polypropylene composites)

IT 108-31-6D, Maleic anhydride, reaction products with polypropylene
9003-07-0D, Polypropylene, maleated
RL: MOA (Modifier or additive use); USES (Uses)
(coupler; effects of maleated polypropylene as coupling agent on performance of regenerated **cellulose** film-reinforced laminated polypropylene composites)

IT 9003-07-0, Polypropylene
RL: PRP (Properties); TEM (Technical or engineered material use); USES

(Uses)
(effects of maleated polypropylene as coupling agent on performance of regenerated **cellulose** film-reinforced laminated polypropylene composites)

L9 ANSWER 6 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:247215 CAPLUS
TITLE: How understanding the **ionic liquid** /**cellulose** dissolution mechanism can guide the generation of advanced **cellulose**-based materials
AUTHOR(S): **Swatloski, Richard P.**; Broughton, Roy M.; Moyna, Guillermo; Daly, Dan T.; Spear, Scott K.; Rogers, Robin D.
CORPORATE SOURCE: Department of Chemistry and Center for Green Manufacturing, The University of Alabama, Tuscaloosa, AL, 35487, USA
SOURCE: Abstracts of Papers, 231st ACS National Meeting, Atlanta, GA, United States, March 26-30, 2006 (2006), IEC-204. American Chemical Society: Washington, D. C. CODEN: 69HYEC
DOCUMENT TYPE: Conference; Meeting Abstract; (computer optical disk)
LANGUAGE: English
TI How understanding the **ionic liquid/cellulose** dissolution mechanism can guide the generation of advanced **cellulose**-based materials
AU **Swatloski, Richard P.**; Broughton, Roy M.; Moyna, Guillermo; Daly, Dan T.; Spear, Scott K.; Rogers, Robin D.

L9 ANSWER 7 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:247162 CAPLUS
TITLE: Use of **ionic liquids** for the processing and analysis of lignocellulosic materials
AUTHOR(S): Remsing, Richard C.; Fort, Diego A.; **Swatloski, Richard P.**; Moyna, Patrick; Rogers, Robin D.; Moyna, Guillermo
CORPORATE SOURCE: Department of Chemistry & Biochemistry, University of the Sciences in Philadelphia, Philadelphia, PA, 19104, USA
SOURCE: Abstracts of Papers, 231st ACS National Meeting, Atlanta, GA, United States, March 26-30, 2006 (2006), IEC-151. American Chemical Society: Washington, D. C. CODEN: 69HYEC
DOCUMENT TYPE: Conference; Meeting Abstract; (computer optical disk)
LANGUAGE: English
TI Use of **ionic liquids** for the processing and analysis of lignocellulosic materials
AU Remsing, Richard C.; Fort, Diego A.; **Swatloski, Richard P.**; Moyna, Patrick; Rogers, Robin D.; Moyna, Guillermo
AB **Cellulose** is the most abundant renewable biopolymer on Earth. While its most notable uses are related to the paper and textile. . . the Kraft pulping process using a barrage of environmentally detrimental chems. We describe a simple and novel method to extract **cellulose** from wood using "green" solvent systems based on the **ionic liquid** (IL) 1-n-butly-3-methylimidazolium chloride ([C4mim]Cl). Extraction profiles for different woods are presented, making particular emphasis on the anal. of **cellulose** content in the IL-based wood

liquors by means of 13C NMR techniques. In addition, we show that **cellulose** virtually free of lignin can be easily reconstituted from the IL liquors. Modifications to the methodol., including the use of. . .

L9 ANSWER 8 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:233428 CAPLUS
DOCUMENT NUMBER: 144:452142
TITLE: Mechanism of **cellulose** dissolution in the **ionic liquid** 1-n-butyl-3-methylimidazolium chloride: a 13C and 35/37Cl NMR relaxation study on model systems
AUTHOR(S): Remsing, Richard C.; **Swatloski, Richard P.**; Rogers, Robin D.; Moyna, Guillermo
CORPORATE SOURCE: Department of Chemistry & Biochemistry, University of the Sciences in Philadelphia, Philadelphia, PA, 19104, USA
SOURCE: Chemical Communications (Cambridge, United Kingdom) (2006), (12), 1271-1273
CODEN: CHCOFS; ISSN: 1359-7345
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Mechanism of **cellulose** dissolution in the **ionic liquid** 1-n-butyl-3-methylimidazolium chloride: a 13C and 35/37Cl NMR relaxation study on model systems
AU Remsing, Richard C.; **Swatloski, Richard P.**; Rogers, Robin D.; Moyna, Guillermo
AB 13C and 35/37Cl NMR relaxation measurements on several model systems demonstrate that the solvation of **cellulose** by the **ionic liquid** (IL) 1-n-butyl-3-methylimidazolium chloride ([C4mim]Cl) involves hydrogen bonding between the carbohydrate hydroxyl protons and the IL chloride ions in a 1:1. . .
ST mechanism **cellulose** dissoln **ionic liq** butyl methylimidazolium chloride
IT Dissolution
Hydrogen bond
(13C and 35/37Cl NMR relaxation study of mechanism of **cellulose** dissoln. in **ionic liquid** 1-n-butyl-3-methylimidazolium chloride)
IT 79917-90-1, 1-Butyl-3-methylimidazolium chloride
RL: NUU (Other use, unclassified); USES (Uses)
(**ionic liquid**; 13C and 35/37Cl NMR relaxation study of mechanism of **cellulose** dissoln. in **ionic liquid** 1-n-butyl-3-methylimidazolium chloride)
IT 50-99-7, Glucose, processes 528-50-7, D-Cellobiose 604-69-3, β-D-Glucose pentaacetate 9004-34-6, **Cellulose**, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(13C and 35/37Cl NMR relaxation study of mechanism of **cellulose** dissoln. in **ionic liquid** 1-n-butyl-3-methylimidazolium chloride)

L9 ANSWER 9 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:1130915 CAPLUS

DOCUMENT NUMBER: 143:387946
TITLE: Polymer dissolution and blend formation in **ionic liquids**
INVENTOR(S): Holbrey, John D.; **Swatloski, Richard P.**; Chen, Ji; Daly, Dan; Rogers, Robin D.
PATENT ASSIGNEE(S): The University of Alabama, USA; Holbrey, John, D.; Swatloski, Richard, P.; Rogers, Robin, D.
SOURCE: PCT Int. Appl., 32 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2005098546 | A2 | 20051020 | WO 2005-US10235 | 20050325 |
| WO 2005098546 | A3 | 20070222 | | |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| US 2005288484 | A1 | 20051229 | US 2005-87496 | 20050324 |
| AU 2005231083 | A1 | 20051020 | AU 2005-231083 | 20050325 |
| CA 2560680 | A1 | 20051020 | CA 2005-2560680 | 20050325 |
| EP 1733282 | A2 | 20061220 | EP 2005-729932 | 20050325 |
| R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, LV, MK, YU | | | | |
| BR 2005009250 | A | 20070911 | BR 2005-9250 | 20050325 |
| JP 2007530743 | T | 20071101 | JP 2007-505253 | 20050325 |
| IN 2006DN05591 | A | 20070824 | IN 2006-DN5591 | 20060925 |
| NO 2006004827 | A | 20061025 | NO 2006-4827 | 20061025 |
| KR 2007042118 | A | 20070420 | KR 2006-722385 | 20061026 |
| PRIORITY APPLN. INFO.: | | | US 2004-556484P P | 20040326 |
| | | | WO 2005-US10235 W | 20050325 |

TI Polymer dissolution and blend formation in **ionic liquids**
IN Holbrey, John D.; **Swatloski, Richard P.**; Chen, Ji; Daly, Dan; Rogers, Robin D.
AB The **ionic liqs.** are for the dissoln. of various polymers and/or copolymers, the formation of resins and blends, and the reconstitution of polymer and/or copolymer solns., and the dissoln. and blending of functional additives and/or various polymers and/or copolymers. Thus, ≥1 **ionic liquid**, which is a liquid salt complex that exists in the liquid phase between about -70 to 300°, is mixed with ≥2 differing polymeric materials to form a mixture, and adding a nonsolvent to the mixture to remove the **ionic liquid** from the resin or blend.
ST **ionic liq** polymer blend **cellulose**
IT Polyimides, uses

RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); PROC (Process); USES (Uses)
(polyamide-; polymer blend formation in **ionic liqs**
.)

IT Polyamides, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); PROC (Process); USES (Uses)
(polyimide-; polymer blend formation in **ionic liqs**
.)

IT Polyamides, uses
Polyesters, uses
Polyimides, uses
Polyoxyalkylenes, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); PROC (Process); USES (Uses)
(polymer blend formation in **ionic liqs.**)

IT Polymer blends
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(polymer blend formation in **ionic liqs.**)

IT **Ionic liquids**
(solvents; polymer blend formation in **ionic liqs.**)

IT 25233-30-1, Polyaniline
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); PROC (Process); USES (Uses)
(emeraldine base; polymer blend formation in **ionic liqs.**)

IT 79917-90-1, 1-Butyl-3-methylimidazolium chloride
RL: NUU (Other use, unclassified); USES (Uses)
(polymer blend formation in **ionic liqs.**)

IT 9002-89-5, Polyvinyl alcohol 9002-98-6 9004-34-6, **Cellulose**, uses 9005-25-8, Starch, uses 9034-32-6, Hemicellulose 25014-41-9, Polyacrylonitrile 25249-16-5, Poly(2-hydroxyethyl methacrylate) 25322-68-3, Polyethylene glycol 26913-06-4, Poly[imino(1,2-ethanediyl)]
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); PROC (Process); USES (Uses)
(polymer blend formation in **ionic liqs.**)

L9 ANSWER 10 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:734798 CAPLUS
DOCUMENT NUMBER: 144:332128
TITLE: Applying **ionic liquids** for controlled processing of polymer materials
AUTHOR(S): Holbrey, John D.; Chen, Ji; Turner, Megan B.; **Swatloski, Richard P.**; Spear, Scott K.; Rogers, Robin D.
CORPORATE SOURCE: Center for Green Manufacturing and Department of Chemistry, The University of Alabama, Tuscaloosa, AL, 35487, USA
SOURCE: ACS Symposium Series (2005), 913(Ionic Liquids in Polymer Systems), 71-87
CODEN: ACSMC8; ISSN: 0097-6156
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
REFERENCE COUNT: 61 THERE ARE 61 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Applying **ionic liquids** for controlled processing of polymer materials

AU Holbrey, John D.; Chen, Ji; Turner, Megan B.; **Swatloski, Richard P.**; Spear, Scott K.; Rogers, Robin D.

AB A review. This perspective examines the potential, highlighting some examples from the on-going research program, to evaluate and apply **ionic liqs.** as advanced functional solvents for dissolving and processing polymers to prepare active materials and composites for sensor and smart materials. . .

ST review **ionic liq** solvent polymer processing composite

IT Green chemistry
**Ionic liquids**
Solvents
(applying **ionic liqs.** for controlled processing of polymer materials in manufacture of composites)

IT Polymers, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(applying **ionic liqs.** for controlled processing of polymer materials in manufacture of composites)

IT 9004-34-6, **Cellulose**, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(applying **ionic liqs.** for controlled processing of polymer materials in manufacture of composites)

L9 ANSWER 11 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:342899 CAPLUS
DOCUMENT NUMBER: 143:28264
TITLE: High-resolution 13C NMR studies of **cellulose** and **cellulose** oligomers in **ionic liquid** solutions
AUTHOR(S): Moulthrop, Jason S.; **Swatloski, Richard P.**; Moyna, Guillermo; Rogers, Robin D.
CORPORATE SOURCE: Dep. of Chem. and Biochem., Univ. of the Sci. in Philadelphia, Philadelphia, PA, 19104, USA
SOURCE: Chemical Communications (Cambridge, United Kingdom) (2005), (12), 1557-1559
CODEN: CHCOFS; ISSN: 1359-7345
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI High-resolution 13C NMR studies of **cellulose** and **cellulose** oligomers in **ionic liquid** solutions

AU Moulthrop, Jason S.; **Swatloski, Richard P.**; Moyna, Guillermo; Rogers, Robin D.

AB High-resolution 13C NMR studies of **cellulose** and **cellulose** oligomers dissolved in the **ionic liquid** (IL) 1-butyl-3-methylimidazolium chloride ([C4mim]Cl) show that the β-(1→4)-linked glucose oligomers are disordered in this medium and have a conformational behavior. . .

ST **cellulose** oligomer **ionic liq** NMR conformation behavior

IT NMR spectroscopy
(carbon-13; conformational behavior of **cellulose** and

**cellulose** oligomers in **ionic liquid** solns.
studied by 13C NMR)

IT Conformation
(β-; of **cellulose** and **cellulose** oligomers in **ionic liquid** solns. studied by 13C NMR)

IT 79917-90-1, 1-Butyl-3-methylimidazolium chloride
RL: NUU (Other use, unclassified); USES (Uses)
(conformational behavior of **cellulose** and **cellulose** oligomers in **ionic liquid** solns. studied by 13C NMR)

IT 528-50-7, Cellobiose 2478-35-5, Cellohexaose 9004-34-6, **Cellulose**, properties 38819-01-1, Cellotetraose
RL: PRP (Properties)
(conformational behavior of **cellulose** and **cellulose** oligomers in **ionic liquid** solns. studied by 13C NMR)

L9 ANSWER 12 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:655919 CAPLUS

TITLE: High-resolution 13C NMR studies of amylose and **cellulose** oligomers in 1-butyl-3-methylimidazolium chloride solutions

AUTHOR(S): Moulthrop, Jason S.; **Swatloski, Richard P.**; Rogers, Robin D.; Moyna, Guillermo

CORPORATE SOURCE: Department of Chemistry & Biochemistry, University of the Sciences in Philadelphia, Philadelphia, PA, 19104, USA

SOURCE: Abstracts of Papers, 228th ACS National Meeting, Philadelphia, PA, United States, August 22-26, 2004 (2004), CARB-063. American Chemical Society: Washington, D. C.
CODEN: 69FTZ8

DOCUMENT TYPE: Conference; Meeting Abstract

LANGUAGE: English

TI High-resolution 13C NMR studies of amylose and **cellulose** oligomers in 1-butyl-3-methylimidazolium chloride solutions

AU Moulthrop, Jason S.; **Swatloski, Richard P.**; Rogers, Robin D.; Moyna, Guillermo

AB A high-resolution 13C NMR (NMR) spectroscopy study of amylose and **cellulose** oligomers dissolved in the **ionic liq**
. (IL) 1-butyl-3-methylimidazolium chloride ([C4mim]Cl) is presented. Results for all the oligosaccharides studied, which included linear (1←4)-linked glucose dimers, tetramers, and. . . angles, indicates that the conformational preferences of these oligosaccharides in [C4mim]Cl and aqueous solns. are similar. Preliminary results obtained for **cellulose** show that its conformational behavior in [C4mim]Cl solution parallels the one observed for the smaller β-(1←4) glucose oligomers, and that the polysaccharide is disordered in the IL solution The impact that these findings may have on green **cellulose** processing methods with potential industrial application is discussed.

L9 ANSWER 13 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:234276 CAPLUS

DOCUMENT NUMBER: 141:39087

TITLE: Applying **ionic liquid** solvent characteristics for controlled processing of polymer materials

AUTHOR(S): Holbrey, John D.; Chen, Ji; Turner, Megan B.; **Swatloski, Richard P.**; Spear, Scott K.;

Rogers, Robin D.

CORPORATE SOURCE: Department of Chemistry and Center for Green Manufacturing, The University of Alabama, Tuscaloosa, AL, 35487, USA

SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2004), 45(1), 297-298
CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer Chemistry

DOCUMENT TYPE: Journal; (computer optical disk)

LANGUAGE: English

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Applying **ionic liquid** solvent characteristics for controlled processing of polymer materials

AU Holbrey, John D.; Chen, Ji; Turner, Megan B.; **Swatloski, Richard P.**; Spear, Scott K.; Rogers, Robin D.

AB The unique, and controllable solubility parameters exhibited by **Ionic Liqs.** (ILs) as a general class of fluids, and by individual IL examples, can be applied to polymer dissoln. and processing,. . .

ST **ionic liq** polymer soly **cellulose**

IT **Ionic liquids**
Polymer morphology
Solubility
(applying **ionic liquid** solvent characteristics for controlled processing of polymer materials)

IT DNA
Polyanilines
Polyoxyalkylenes, properties
RL: PRP (Properties)
(applying **ionic liquid** solvent characteristics for controlled processing of polymer materials)

IT Albumins, properties
RL: PRP (Properties)
(serum, bovine; applying **ionic liquid** solvent characteristics for controlled processing of polymer materials)

IT 79917-90-1, 1-Butyl-3-methylimidazolium chloride 174501-64-5, 1-Butyl-3-methylimidazolium hexafluorophosphate 174501-65-6, 1-Butyl-3-methylimidazolium tetrafluoroborate
RL: NUU (Other use, unclassified); USES (Uses)
(applying **ionic liquid** solvent characteristics for controlled processing of polymer materials)

IT 9002-89-5, Poly (vinyl alcohol) 9004-34-6, **Cellulose**, properties 9005-25-8, Starch, properties 25014-41-9, Polyacrylonitrile 25233-30-1, Polyaniline 25249-16-5, Poly(2-hydroxyethylmethacrylate) 25322-68-3, Poly (ethylene glycol) 25322-69-4, Polypropylene glycol
RL: PRP (Properties)
(applying **ionic liquid** solvent characteristics for controlled processing of polymer materials)

L9 ANSWER 14 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:222070 CAPLUS

TITLE: **Cellulose**-supported colorimetric sensors for mercury ion detection

AUTHOR(S): Poplin, Jane Holly; **Swatloski, Richard P.**; Holbrey, John D.; Spear, Scott K.; Rogers, Robin D.

CORPORATE SOURCE: Department of Chemistry and Center for Green

Manufacturing, The University of Alabama, Tuscaloosa, AL, 35486, USA

SOURCE: Abstracts of Papers, 227th ACS National Meeting, Anaheim, CA, United States, March 28-April 1, 2004 (2004), CELL-024. American Chemical Society: Washington, D. C.
CODEN: 69FGKM

DOCUMENT TYPE: Conference; Meeting Abstract

LANGUAGE: English

TI **Cellulose**-supported colorimetric sensors for mercury ion detection

AU Poplin, Jane Holly; **Swatloski, Richard P.**; Holbrey, John D.; Spear, Scott K.; Rogers, Robin D.

AB **Cellulose** membranes are extremely porous and highly wetable which has advantages over hydrophobic, poorly wetting supports such as PVC or polyethylene for sensing in aqueous systems by providing fast transport of water-soluble ions to the active sensing sites. Responsive, colorimetric **cellulose** materials can be prepared by introducing a sensing moiety into **cellulose**-in-**ionic liquid** solns., providing a flexible route for forming indicating films by casting from water. PAN,1-(2-pyridylazo)-2-naphthol, a colorimetric complexant for transition metals can be readily incorporated into **cellulose** films, and is extremely responsive to metal-ions in solution, tuning from orange to a deep-red in the presence of mercury. . .

L9 ANSWER 15 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:162249 CAPLUS

DOCUMENT NUMBER: 140:201295

TITLE: Regenerated **cellulose** matrix-encapsulated active substances and method therefor

INVENTOR(S): Holbrey, John David; Spear, Scott K.; Turner, Megan B.; **Swatloski, Richard Patrick**; Rogers, Robin Don

PATENT ASSIGNEE(S): The University of Alabama, USA; PG Research Foundation

SOURCE: U.S. Pat. Appl. Publ., 21 pp., Cont.-in-part of U.S. Ser. No. 256,521.
CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| US 2004038031 | A1 | 20040226 | US 2003-394989 | 20030321 |
| US 6808557 | B2 | 20041026 | | |
| US 2003157351 | A1 | 20030821 | US 2002-256521 | 20020927 |
| US 6824599 | B2 | 20041130 | | |
| CN 101007853 | A | 20070801 | CN 2007-10085298 | 20021003 |
| AU 2004224375 | A1 | 20041007 | AU 2004-224375 | 20040319 |
| CA 2519652 | A1 | 20041007 | CA 2004-2519652 | 20040319 |
| WO 2004084627 | A2 | 20041007 | WO 2004-US8411 | 20040319 |
| WO 2004084627 | A3 | 20060105 | | |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,

NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

| | | | | |
|---|---|---|---|---|
| BR 2004008606 | A | 20060307 | BR 2004-8606 | 20040319 |
| EP 1648692 | A2 | 20060426 | EP 2004-757863 | 20040319 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK | | | | |
| CN 1867448 | A | 20061122 | CN 2004-80013560 | 20040319 |
| JP 2006526673 | T | 20061124 | JP 2006-507356 | 20040319 |
| IN 2005DN04541 | A | 20070817 | IN 2005-DN4541 | 20051006 |
| PRIORITY APPLN. INFO.: | | | US 2001-326704P | P 20011003 |
| | | | US 2002-256521 | A2 20020927 |
| | | | CN 2002-823875 | A3 20021003 |
| | | | US 2003-394989 | A 20030321 |
| | | | WO 2004-US8411 | W 20040319 |

OTHER SOURCE(S): MARPAT 140:201295
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Regenerated **cellulose** matrix-encapsulated active substances and method therefor

IN Holbrey, John David; Spear, Scott K.; Turner, Megan B.; **Swatloski, Richard Patrick**; Rogers, Robin Don

AB The process involves encapsulation or immobilization of the active solid substance in a **cellulose** framework by regenerating **cellulose** dissolved in an **ionic liquid** solvent in a regenerating solution The active substance can be initially present in the **ionic liquid** or in the regenerating solvent either as a solution or dispersion. The invention is applicable to mol. encapsulation and to. . . to the formation of bulk materials with a wide range of morphol. forms. Thus, carbamoylmethylphosphine oxide (I) encapsulated in a **cellulose** matrix was realized by adding I to a 10% solution of **cellulose** in 1-butyl-3-methylimidazolium chloride ( **ionic liquid**) under vigorous stirring and then removing the **ionic liquid** with water.

ST **ionic liq** regenerated **cellulose** encapsulation active substance; carbamoylmethylphosphine oxide encapsulation regenerated **cellulose**

IT Quaternary ammonium compounds, uses
RL: NUU (Other use, unclassified); USES (Uses)
(**ionic liquid**; regenerated **cellulose** matrix-encapsulated active substances and method therefor)

IT Encapsulation
(regenerated **cellulose** matrix-encapsulated active substances and method therefor)

IT Ubiquinones
RL: MSC (Miscellaneous)
(regenerated **cellulose** matrix-encapsulated active substances and method therefor)

IT Albumins, miscellaneous
RL: MSC (Miscellaneous)
(serum, bovine; regenerated **cellulose** matrix-encapsulated active substances and method therefor)

IT 2580-56-5, Victoria blue B

RL: MSC (Miscellaneous)
(dye; regenerated **cellulose** matrix-encapsulated active substances and method therefor)

IT 9004-34-6, **Cellulose**, uses 76296-24-7, **Cellulose** azure
RL: TEM (Technical or engineered material use); USES (Uses)
(encapsulation agent; regenerated **cellulose** matrix-encapsulated active substances and method therefor)

IT 83242-95-9, CMPO
RL: MSC (Miscellaneous)
(extractant; regenerated **cellulose** matrix-encapsulated active substances and method therefor)

IT 79917-90-1, 1-Butyl-3-methylimidazolium Chloride
RL: NUU (Other use, unclassified); USES (Uses)
(**ionic liquid**; regenerated **cellulose** matrix-encapsulated active substances and method therefor)

IT 553-12-8, Protoporphyrin IX 80498-15-3, Laccase
RL: MSC (Miscellaneous)
(regenerated **cellulose** matrix-encapsulated active substances and method therefor)

L9 ANSWER 16 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:684181 CAPLUS
DOCUMENT NUMBER: 140:147858
TITLE: **Ionic liquids** for the dissolution and regeneration of **cellulose**
AUTHOR(S): **Swatloski, Richard P.**; Holbrey, John D.; Spear, Scott K.; Rogers, Robin D.
CORPORATE SOURCE: Department of Chemistry and Center for Green Manufacturing, The University of Alabama, Tuscaloosa, AL, 35487-0336, USA
SOURCE: Proceedings - Electrochemical Society (2002), 2002-19(Molten Salts XIII), 155-164
CODEN: PESODO; ISSN: 0161-6374
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI **Ionic liquids** for the dissolution and regeneration of **cellulose**

AU **Swatloski, Richard P.**; Holbrey, John D.; Spear, Scott K.; Rogers, Robin D.

AB There is an increasing willingness to develop new **cellulose** -based materials, particularly from homogeneous solution, due to the fact that **cellulose** is the earth's most abundant biorenewable resource. The opportunity to use **ionic liqs.** as solvents for clean extraction and processing of **cellulose** was investigated. **Cellulose** can be dissolved in a number of **ionic liqs.** and easily regenerated by contacting with water. This allows a simple, benign system for the processing of **cellulose** into fibers, monoliths, and films by forming into an aqueous phase. This has potential environmental and cost advantages over current. . .

ST alkylmethylimidazolium **ionic liq** dissoln **cellulose** rayon regeneration

IT **Ionic liquids**

Thermal. decomposition
(alkylmethylimidazolium-based **ionic liqs.** for dissoln. and regeneration of **cellulose**)

IT Rayon, properties
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(alkylmethylimidazolium-based **ionic liqs.** for dissoln. and regeneration of **cellulose**)

IT 64697-40-1, 1-Methyl-3-octylimidazolium chloride 79917-90-1, 1-Butyl-3-methylimidazolium chloride 85100-77-2, 1-Butyl-3-methylimidazolium bromide 171058-17-6, 1-Hexyl-3-methylimidazolium chloride 174501-64-5, 1-Butyl-3-methylimidazolium hexafluorophosp[hate 174501-65-6, 1-Butyl-3-methylimidazolium tetrafluoroborate 344790-87-0, 1-Butyl-3-methylimidazolium thiocyanate
RL: NUU (Other use, unclassified); USES (Uses)
(alkylmethylimidazolium-based **ionic liqs.** for dissoln. and regeneration of **cellulose**)

IT 9004-34-6, **Cellulose**, processes
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(alkylmethylimidazolium-based **ionic liqs.** for dissoln. and regeneration of **cellulose**)

L9 ANSWER 17 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:635072 CAPLUS
TITLE: Application of **ionic liquid** technologies to nuclear separations
AUTHOR(S): Rogers, Robin D.; Holbrey, John D.; Spear, Scott K.; Gutowski, Keith E.; Bridges, Nicholas J.; Cocalia, Violina A.; **Swatloski, Richard P.**
CORPORATE SOURCE: Department of Chemistry and Center for Green Manufacturing, The University of Alabama, Tuscaloosa, AL, 35487, USA
SOURCE: Abstracts of Papers, 226th ACS National Meeting, New York, NY, United States, September 7-11, 2003 (2003), NUCL-092. American Chemical Society: Washington, D. C.
CODEN: 69EKY9
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English

TI Application of **ionic liquid** technologies to nuclear separations

AU Rogers, Robin D.; Holbrey, John D.; Spear, Scott K.; Gutowski, Keith E.; Bridges, Nicholas J.; Cocalia, Violina A.; **Swatloski, Richard P.**

AB Room temperature **Ionic Liqs.** (ILs), organic salts that are liquid at, or close to room temperature have great potential application for uses in liquid-liquid. . . . into an IL; immobilizing IL extractant phases on solid supports; and utilization of the solubilizing power of ILs to prepare **cellulose**-based materials for f-element sepns. ILs can thus be considered as a new class of materials for nuclear sepns., distinct from. . . .

L9 ANSWER 18 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:632691 CAPLUS
TITLE: **Cellulose** films regenerated from ILs and their role as scaffolding for enzyme attachment via glutaraldehyde
AUTHOR(S): Turner, Megan B.; Spear, Scott K.; **Swatloski,**

**Richard P.**; Holbrey, John D.; Rogers, Robin D.
CORPORATE SOURCE: Department of Chemistry and Center for Green Manufacturing, The University of Alabama, Tuscaloosa, AL, 35487, USA
SOURCE: Abstracts of Papers, 226th ACS National Meeting, New York, NY, United States, September 7-11, 2003 (2003), IEC-190. American Chemical Society: Washington, D. C. CODEN: 69EKY9
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
TI **Cellulose** films regenerated from ILs and their role as scaffolding for enzyme attachment via glutaraldehyde
AU Turner, Megan B.; Spear, Scott K.; **Swatloski, Richard P.**; Holbrey, John D.; Rogers, Robin D.
AB . . . enzyme stability and thus activity, and also enable simple recovery and recycling of catalysts. Here we describe the investigation of **cellulose** films containing encapsulated laccase, from Rhus vernificera, prepared by dissoln. and casting from 1-butyl-3-methylimidazole chloride **ionic liquid** solution Laccase can be successfully immobilized in **cellulose** films prepared in this way, while maintaining enzymic activity, and the activity can be controlled by pretreatment and processing methodologies.. . .

L9 ANSWER 19 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:632574 CAPLUS
TITLE: **Ionic liquids** as green solvents: Engineering new bio-based materials
AUTHOR(S): **Swatloski, Richard P.**; Holbrey, John D.; Spear, Scott K.; Rogers, Robin D.
CORPORATE SOURCE: Department of Chemistry and Center for Green Manufacturing, The University of Alabama, Tuscaloosa, AL, 35487, USA
SOURCE: Abstracts of Papers, 226th ACS National Meeting, New York, NY, United States, September 7-11, 2003 (2003), IEC-090. American Chemical Society: Washington, D. C. CODEN: 69EKY9
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
TI **Ionic liquids** as green solvents: Engineering new bio-based materials
AU **Swatloski, Richard P.**; Holbrey, John D.; Spear, Scott K.; Rogers, Robin D.
AB . . . complement, or replace diminishing petroleum-based feed-stocks. We have recently utilized 1-butyl-3-methylimidazolium chloride for the dissoln. of nature's most abundant renewable resources--**cellulose** . Because **ionic liqs.** can dissolve a wide range of materials, it can be anticipated that they will offer a route for incorporation of many functional mols. for sensing, recognition, or mol. binding into modified **cellulose** materials that have not been accessible in other traditional **cellulose** solvent systems. In this presentation we will examine the phys. properties of these new materials, as well as their possible. . .

L9 ANSWER 20 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:632439 CAPLUS
TITLE: CMPO-impregnated cellulosic materials from **ionic liquids** for f-element

separations
AUTHOR(S): Rogers, Robin D.; Holbrey, John D.; Spear, Scott K.; Gutowski, Keith E.; **Swatloski, Richard P.**
CORPORATE SOURCE: Department of Chemistry and Center for Green Manufacturing, The University of Alabama, Tuscaloosa, AL, 35487, USA
SOURCE: Abstracts of Papers, 226th ACS National Meeting, New York, NY, United States, September 7-11, 2003 (2003), IEC-045. American Chemical Society: Washington, D. C. CODEN: 69EKY9
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English

TI CMPO-impregnated cellulosic materials from **ionic liquids** for f-element separations

AU Rogers, Robin D.; Holbrey, John D.; Spear, Scott K.; Gutowski, Keith E.; **Swatloski, Richard P.**

AB By taking advantage of the solubility of both **cellulose** and CMPO (octyl(phenyl)-N,N-diisobutylcarbamoylmethyl phosphine oxide) in the **ionic liquid** 1-butyl-3-methylimidazolium chloride, we have prepared CMPO-impregnated cellulosic materials as flocs, beads, rods, and membranes. Americium-241, plutonium-239, and uranium-233 all exhibit significant partitioning from aqueous solns. to the **cellulose** impregnated materials with increasing concns. of nitric acid. In this presentation we will examine the phys. properties of these new. . .

L9 ANSWER 21 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:282640 CAPLUS
DOCUMENT NUMBER: 138:289216
TITLE: Dissolution and processing of **cellulose** using **ionic liquids**, **cellulose** solution, and regenerating **cellulose**
INVENTOR(S): **Swatloski, Richard Patrick**; Rogers, Robin Don; Holbrey, John David
PATENT ASSIGNEE(S): The University of Alabama, USA; Pg Research Foundation, Inc.
SOURCE: PCT Int. Appl., 59 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2003029329 | A2 | 20030410 | WO 2002-US31404 | 20021003 |
| WO 2003029329 | A3 | 20030731 | | |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

| | | | | |
|---|---|---|---|---|
| CA 2462460 | A1 | 20030410 | CA 2002-2462460 | 20021003 |
| AU 2002347788 | A1 | 20030414 | AU 2002-347788 | 20021003 |
| EP 1458805 | A2 | 20040922 | EP 2002-784000 | 20021003 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK | | | | |
| JP 2005506401 | T | 20050303 | JP 2003-532567 | 20021003 |
| CN 1596282 | A | 20050316 | CN 2002-823875 | 20021003 |
| NZ 532076 | A | 20050930 | NZ 2002-532076 | 20021003 |
| BR 2002013106 | A | 20060523 | BR 2002-13106 | 20021003 |
| CN 101007853 | A | 20070801 | CN 2007-10085298 | 20021003 |
| MX 2004PA03029 | A | 20050620 | MX 2004-PA3029 | 20040331 |
| ZA 2004002610 | A | 20041223 | ZA 2004-2610 | 20040401 |
| NO 2004001774 | A | 20040430 | NO 2004-1774 | 20040430 |
| IN 2004DN01175 | A | 20060728 | IN 2004-DN1175 | 20040430 |
| PRIORITY APPLN. INFO.: | | | US 2001-326704P | P 20011003 |
| | | | CN 2002-823875 | A3 20021003 |
| | | | WO 2002-US31404 | W 20021003 |

OTHER SOURCE(S): MARPAT 138:289216

TI Dissolution and processing of **cellulose** using **ionic liquids**, **cellulose** solution, and regenerating **cellulose**

IN **Swatloski, Richard Patrick**; Rogers, Robin Don; Holbrey, John David

AB **Cellulose** is dissolved in an **ionic liquid** without derivatization, and is regenerated in a range of structural forms without requiring the use of harmful or volatile organic solvents. **Cellulose** solubility and the solution properties can be controlled by the selection of the **ionic liquid** constituents, with small cations and halide or pseudohalide anions favoring solution; dissoln. can be aided by irradiation An **ionic liquid**, [C4mim]Cl, proved to be the best for dissolving **cellulose.**

ST **cellulose** dissolving **ionic liq**

IT Fibers
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(cellulosic; dissoln. and processing of **cellulose** using hydrophilic **ionic liqs.**)

IT **Cellulose** pulp
Dissolution
Gossypium hirsutum
**Ionic liquids**
Paper
Solvent effect
(dissoln. and processing of **cellulose** using hydrophilic **ionic liqs.**)

IT Crystallinity
(liquid; dissoln. and processing of **cellulose** using hydrophilic **ionic liqs.**)

IT 79917-90-1, 1-Butyl-3-methylimidazolium chloride 85100-77-2, 1-Butyl-3-methylimidazolium bromide 344790-87-0, 1-Butyl-3-methylimidazolium thiocyanate
RL: NUU (Other use, unclassified); USES (Uses)
(dissoln. and processing of **cellulose** using hydrophilic **ionic liqs.**)

IT 9004-34-6, **Cellulose**, processes
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)

(dissoln. and processing of **cellulose** using hydrophilic **ionic liqs.**)

L9 ANSWER 22 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:182947 CAPLUS
TITLE: Properties of regenerated **cellulose** from **ionic liquids**
AUTHOR(S): **Swatloski, Richard P.**; Holbrey, John D.; Spear, Scott K.; Rogers, Robin D.
CORPORATE SOURCE: Department of Chemistry and Center for Green Manufacturing, The University of Alabama, Tuscaloosa, AL, 35487, USA
SOURCE: Abstracts of Papers, 225th ACS National Meeting, New Orleans, LA, United States, March 23-27, 2003 (2003), IEC-167. American Chemical Society: Washington, D. C. CODEN: 69DSA4
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
TI Properties of regenerated **cellulose** from **ionic liquids**
AU **Swatloski, Richard P.**; Holbrey, John D.; Spear, Scott K.; Rogers, Robin D.
AB **Cellulose** is the earth's most abundant biorenewable material. It has important com. applications across a wide variety of technologies. A hindrance in this field is due to the limited number of solvents capable of completely dissolving **cellulose.** In our labs., we have utilized **ionic liqs.** (ILs) to successfully dissolve up to 30% wt/wt of **cellulose** without pretreatment or derivitization. **Cellulose** can easily be regenerated from the IL solution simply by contacting the cellulosic solution with water. We will describe methods for regeneration-capable of forming thin films, filaments, and membranes. Results from regenerated **cellulose**, as well as important phys. properties of the regenerated **cellulose** will be discussed. This research is sponsored by The PG Research Foundation, Inc.

L9 ANSWER 23 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:179636 CAPLUS
TITLE: **Ionic liquids** as green solvents for the dissolution and regeneration of **cellulose**
AUTHOR(S): **Swatloski, Richard P.**; Spear, Scott K.; Holbrey, John D.; Rogers, Robin D.
CORPORATE SOURCE: Department of Chemistry and Center for Green Manufacturing, The University of Alabama, Tuscaloosa, AL, 35487, USA
SOURCE: Abstracts of Papers, 225th ACS National Meeting, New Orleans, LA, United States, March 23-27, 2003 (2003), CELL-131. American Chemical Society: Washington, D. C.
CODEN: 69DSA4
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
TI **Ionic liquids** as green solvents for the dissolution and regeneration of **cellulose**
AU **Swatloski, Richard P.**; Spear, Scott K.; Holbrey, John D.; Rogers, Robin D.
AB With increasing governmental regulations restricting the use of current

**cellulose** solvents, the need to replace them is becoming more important. **Ionic Liqs.** (ILs) have gained considerable attention for their potential use as green solvents, and the use of ILs as -green' replacements. . . solvents has been studied in recent literature. In our labs., we have utilized ILs as solvents, for the dissoln. of **cellulose.** We have successfully dissolved, without pretreatment or derivitization, up to 30% wt/wt of **cellulose** in ILs, which enables the use of ILs as a feasible and effective non-volatile alternatives to some of the environmentally undesirable solvent systems currently in use. The **cellulose** can be regenerated from the **ionic liquid** by simply contacting them with water. This allows a simple, benign system for the processing of **cellulose** into fibers, monoliths and films by forming into an aqueous phase. Results from regenerated **cellulose**, as well as important intermol. forces responsible for the dissoln. of **cellulose** will be presented. This research is sponsored by The PG Research Foundation, Inc.

L9 ANSWER 24 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:617063 CAPLUS
TITLE: **Ionic liquids**: New solvents for nonderivitized **cellulose** dissolution
AUTHOR(S): **Swatloski, Richard P.**; Spear, Scott K.; Holbrey, John D.; Rogers, Robin D.
CORPORATE SOURCE: Department of Chemistry and Center for Green Manufacturing, The University of Alabama, Tuscaloosa, AL, 35487, USA
SOURCE: Abstracts of Papers, 224th ACS National Meeting, Boston, MA, United States, August 18-22, 2002 (2002), IEC-076. American Chemical Society: Washington, D. C. CODEN: 69CZPZ
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
TI **Ionic liquids**: New solvents for nonderivitized **cellulose** dissolution
AU **Swatloski, Richard P.**; Spear, Scott K.; Holbrey, John D.; Rogers, Robin D.
AB There are only a limited number of solvents that can effectively dissolve **cellulose** without derivitization; all have environmental downsides, and in some cases are even poor systems for the dissoln. Though it was first suggested in 1934 by Graenacher that molten N-ethylpyridinium chloride could be used to dissolve **cellulose**, at the time this seemed very impractical and of little value since the molten salt was, at the time, esoteric and a relatively high m.p. of 118 °C. Here we examine the history of **cellulose** solvents, the solubility of **cellulose** in **ionic liqs.** without activation or pretreatment, and the regeneration of **cellulose** from simple, nonvolatile ILs.

L9 ANSWER 25 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:287553 CAPLUS
DOCUMENT NUMBER: 136:387576
TITLE: Dissolution of **cellulose** with **ionic liquids**
AUTHOR(S): **Swatloski, Richard P.**; Spear, Scott K.; Holbrey, John D.; Rogers, Robin D.
CORPORATE SOURCE: Center for Green Manufacturing and Department of Chemistry, The University of Alabama, Tuscaloosa, AL,

35487, USA
SOURCE: Journal of the American Chemical Society (2002), 124(18), 4974-4975
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Dissolution of **cellulose** with **ionic liquids**

AU **Swatloski, Richard P.**; Spear, Scott K.; Holbrey, John D.; Rogers, Robin D.

AB Initial results that demonstrate that **cellulose** can be dissolved without activation or pretreatment in, and regenerated from, 1-butyl-3-methylimidazolium chloride and other hydrophilic **ionic liqs.** are reported. This may enable the application of **ionic liqs.** as alternatives to environmentally undesirable solvents currently used for dissoln. of this important bio-resource.

ST butylmethylimidazolium chloride hydrophilic **ionic liq** solvent effect **cellulose** dissoln

IT **Cellulose** pulp
Dissolution
**Ionic liquids**
Solvent effect
Thermal decomposition
(dissoln. of **cellulose** with hydrophilic **ionic liquid** solvents)

IT 9004-34-6, **Cellulose**, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(dissoln. of **cellulose** with hydrophilic **ionic liquid** solvents)

IT 64697-40-1 79917-90-1, 1-Butyl-3-methylimidazolium chloride 85100-77-2, 1-Butyl-3-methylimidazolium bromide 171058-17-6 174501-64-5 174501-65-6 344790-87-0, 1-Butyl-3-methylimidazolium thiocyanate
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; dissoln. of **cellulose** with hydrophilic **ionic liquid** solvents)

L9 ANSWER 26 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:639079 CAPLUS
TITLE: Derivatization of chitin in room temperature **ionic liquids**
AUTHOR(S): Reichert, W. Matthew; Visser, Ann E.; **Swatloski, Richard P.**; Spear, Scott K.; Rogers, Robin D.
CORPORATE SOURCE: Department of Chemistry and Center for Green Manufacturing, The University of Alabama, Tuscaloosa, AL, 35487, USA
SOURCE: Abstracts of Papers, 222nd ACS National Meeting, Chicago, IL, United States, August 26-30, 2001 (2001), IEC-025. American Chemical Society: Washington, D. C.
CODEN: 69BUZP
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English

TI Derivatization of chitin in room temperature **ionic**

**liquids**

AU Reichert, W. Matthew; Visser, Ann E.; **Swatloski, Richard P.**; Spear, Scott K.; Rogers, Robin D.

AB . . . sepns. are usually the key steps preventing economic processing of biomass. Chitin is the world's second most abundant biopolymer, behind **cellulose**, and in this presentation, we will demonstrate the use of room temperature **ionic liqs.** as solvents in the chemical modification of chitin. In addition, the use of **ionic liqs** . for value added processing (e.g., decolorization of chitin) will be discussed.

=> file stng

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| FULL ESTIMATED COST | 91.70 | 120.10 |

| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| CA SUBSCRIBER PRICE | -19.50 | -24.18 |

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| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
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| FULL ESTIMATED COST | 0.18 | 120.28 |

| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| CA SUBSCRIBER PRICE | 0.00 | -24.18 |

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FILE COVERS 1907 - 26 Nov 2007 VOL 147 ISS 23
FILE LAST UPDATED: 25 Nov 2007 (20071125/ED)

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=> "ionic liquid" and cellulose
        284921 "IONIC"
           511 "IONICS"
        285185 "IONIC"
                 ("IONIC" OR "IONICS")
        800777 "LIQUID"
        138530 "LIQUIDS"
        904338 "LIQUID"
                 ("LIQUID" OR "LIQUIDS")
       1105042 "LIQ"
        104871 "LIQS"
       1145172 "LIQ"
                 ("LIQ" OR "LIQS")
       1588658 "LIQUID"
                 ("LIQUID" OR "LIQ")
         11079 "IONIC LIQUID"
                 ("IONIC"(W)"LIQUID")
        360710 CELLULOSE
          4428 CELLULOSES
        361213 CELLULOSE
                 (CELLULOSE OR CELLULOSES)
L10        177 "IONIC LIQUID" AND CELLULOSE

=> l10 and ether?
        603706 ETHER?
L11         11 L10 AND ETHER?

=> d l11 1-11 ibib kwic

L11  ANSWER 1 OF 11  CAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:         2007:1088611  CAPLUS
DOCUMENT NUMBER:          147:387771
TITLE:                    Methods for modifying cellulosic polymers in
                          ionic liquids
INVENTOR(S):              Scheibel, Jeffrey John; Kenneally, Corey James;
                          Menkhaus, Julie Ann; Seddon, Kenneth Richard; Chwala,
                          Prezemyslaw
PATENT ASSIGNEE(S):       The Procter & Gamble Company, USA
SOURCE:                   U.S. Pat. Appl. Publ., 8pp.
                          CODEN: USXXCO
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.           KIND   DATE        APPLICATION NO.          DATE
     ---------------      ----   --------    --------------------     --------
     US 2007225190         A1    20070927    US 2007-726609           20070322
     WO 2007112382         A1    20071004    WO 2007-US65000          20070327
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA,
             CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB,
             GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM,
             KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, MG, MK,
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MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.: US 2006-786415P P 20060327

TI Methods for modifying cellulosic polymers in **ionic liquids**

AB Sulfation or sulfonation of **cellulose** and **cellulose ethers** is conducted in an **ionic liquid** such as a quaternary ammonium salt. Detergent compns. containing the sulfated or sulfonated reaction product are suitable for fabric cleansing.

ST cellulosic polymer modification **ionic liq** sulfonation sulfation

IT Sulfates, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(alkyl ethoxy, detergents; methods for modifying cellulosic polymers in **ionic liqs.** and their applications for fabric cleansing)

IT Sulfonic acids, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(arenesulfonic, salts, detergents; methods for modifying cellulosic polymers in **ionic liqs.** and their applications for fabric cleansing)

IT Catalysts
(bleach; methods for modifying cellulosic polymers in **ionic liqs.** and their applications for fabric cleansing)

IT Zeolites (synthetic), uses
RL: TEM (Technical or engineered material use); USES (Uses)
(builders; methods for modifying cellulosic polymers in **ionic liqs.** and their applications for fabric cleansing)

IT Alcohols, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(ethoxylated, detergents; methods for modifying cellulosic polymers in **ionic liqs.** and their applications for fabric cleansing)

IT Detergents
(laundry; methods for modifying cellulosic polymers in **ionic liqs.** and their applications for fabric cleansing)

IT Antibacterial agents
Bleaching agents
Brightening agents
Chelating agents
Creaseproofing
Detergent builders
Dyes
Fireproofing agents
**Ionic liquids**
Perfumes
Sizing
Skin conditioners
Soils
Sulfation
Sulfonation

Surfactants
Textiles
(methods for modifying cellulosic polymers in **ionic liqs.** and their applications for fabric cleansing)

IT Enzymes, uses
RL: CAT (Catalyst use); USES (Uses)
(methods for modifying cellulosic polymers in **ionic liqs.** and their applications for fabric cleansing)

IT Clays, processes
RL: REM (Removal or disposal); PROC (Process)
(methods for modifying cellulosic polymers in **ionic liqs.** and their applications for fabric cleansing)

IT Vitamins
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(methods for modifying cellulosic polymers in **ionic liqs.** and their applications for fabric cleansing)

IT Biopolymers
Quaternary ammonium compounds, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(methods for modifying cellulosic polymers in **ionic liqs.** and their applications for fabric cleansing)

IT UV radiation
(protection; methods for modifying cellulosic polymers in **ionic liqs.** and their applications for fabric cleansing)

IT Aromatic compounds
RL: TEM (Technical or engineered material use); USES (Uses)
(sulfonates, detergents; methods for modifying cellulosic polymers in **ionic liqs.** and their applications for fabric cleansing)

IT 9004-34-6, **Cellulose**, uses
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(methods for modifying cellulosic polymers in **ionic liqs.** and their applications for fabric cleansing)

IT 9032-43-3P, **Cellulose** sulfate
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(methods for modifying cellulosic polymers in **ionic liqs.** and their applications for fabric cleansing)

IT 124-41-4, Sodium methoxide 5329-14-6, Sulfamic acid 7664-93-9, Sulfuric acid, uses 7790-94-5, Chlorosulfonic acid 28322-92-1, Sulfur trioxide-pyridine complex 79917-90-1, 1-n-Butyl-3-methylimidazolium chloride
RL: TEM (Technical or engineered material use); USES (Uses)
(methods for modifying cellulosic polymers in **ionic liqs.** and their applications for fabric cleansing)

L11 ANSWER 2 OF 11 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2007:933138 CAPLUS
DOCUMENT NUMBER: 147:290978
TITLE: Method of processing a biological and/or chemical sample
INVENTOR(S): Pipper, Juergen; Hsieh, Tseng-Ming; Neuzil, Pavel
PATENT ASSIGNEE(S): Agency for Science, Technology and Research, Singapore
SOURCE: PCT Int. Appl., 67pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2007094739 | A1 | 20070823 | WO 2006-SG29 | 20060213 |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.: WO 2006-SG29 20060213
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Air analysis
Amniotic fluid
Animal tissue
Animal tissue culture
Bioluminescence
Blood analysis
Blood plasma
Blood serum
Body fluid
Bone marrow
Cell
Ceramics
Cerebrospinal fluid
Colorimetry
Composites
Cytolysis
Drops
Dyes
Electromagnetic field
Electromagnets
Environmental analysis
Enzyme-linked immunosorbent assay
Extracellular matrix
Extraction
Feces
Films
Filtration
Fluorometry
Food analysis
Groundwaters
Hair
Immobilization, molecular or cellular
Interferometry
**Ionic liquids**

Ions
Leukocyte
Lymph
Magnetic field
Magnetic fluids
Magnets
Microorganism
Milk analysis
Mixing
Nail (anatomical)
Neoplasm
Optical diffraction
Paper
Particles
Pharmaceutical analysis
Photometry
Radioactive fallout
Rainwater
Sample preparation
Semen
Skin
Soil analysis
Spectroscopy
Sputum
Urine analysis
Virus
Wastewater
(method of processing biol. and/or chemical sample in fluid droplet)

IT Agglutinins and Lectins
Aluminosilicates, uses
Ankyrins
Antibodies and Immunoglobulins
Calmodulins
Crown **ethers**
Enzymes, uses
Gelatins, uses
Ligands
Lipocalins
Nucleic acids
Peptides, uses
Protein A
Proteins
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(method of processing biol. and/or chemical sample in fluid droplet)

IT **Ethers**, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(method of processing biol. and/or chemical sample in fluid droplet)

IT 53-59-8, NADP 53-84-9, NAD 56-87-1, Lysine, uses 69-79-4, Maltose 70-18-8, Glutathione, uses 74-79-3, Arginine, uses 618-39-3, Benzamidine 1398-61-4, Chitin 1406-11-7, Polymyxin 9004-34-6, **Cellulose**, uses 9005-49-6, Heparin, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(method of processing biol. and/or chemical sample in fluid droplet)

L11 ANSWER 3 OF 11 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2007:458864 CAPLUS
DOCUMENT NUMBER: 146:458065

TITLE: The application using non-covalent bond between a cucurbituril derivative and a ligand

INVENTOR(S): Kim, Kimoon; Baek, Kangkyun; Kim, Jeeyoun; Hwang, Ilha; Ko, Young-Ho; Selvapalam, Narayanan; Nagarajan, Erumaipatty R.; Park, Kyeng-Min

PATENT ASSIGNEE(S): Postech Academy-Industry Foundation, S. Korea

SOURCE: PCT Int. Appl., 67pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2007046575 | A1 | 20070426 | WO 2006-KR687 | 20060228 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| KR 2007050747 | A | 20070516 | KR 2006-18434 | 20060224 |
| US 2007092867 | A1 | 20070426 | US 2006-407143 | 20060420 |

PRIORITY APPLN. INFO.:

| | | |
|---|---|---|
| KR 2005-99379 | A | 20051020 |
| KR 2005-108312 | A | 20051112 |
| KR 2006-891 | A | 20060104 |
| KR 2006-18434 | A | 20060224 |

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB . . . phase, a biomol., an antioxidant, a chemical therapeutic agent, an antihistaminic agent, a cucurbituril dendrimer, a cyclodextrin derivative, a crown **ether** derivative, a calixarene derivative, a cyclophane derivative, a cyclic peptide derivative, a metallic ion, a chromophore, a fluorescent material, a. . .

IT Affinity chromatographic stationary phases
Affinity chromatography
Amino group
Antihistamines
Antioxidants
Antitumor agents
Catalysts
Cations
Cell
Cell death
Cell membrane
Chemical formula
Chloromethylation
Chromophores
Fluorescent substances
Immobilization, molecular or cellular

**Ionic liquids**
Magnetic materials
Mixtures
Nanotubes
Nanowires
Noncovalent bond
Phosphors
Radioactive substances
Separation
Solvents
Test kits
Virus
(application using non-covalent bond between cucurbituril derivative and ligand)

IT Agglutinins and Lectins
Amino acids, uses
Antibodies and Immunoglobulins
Antigens
Biochemical compounds
Chemical compounds
Coenzymes
Crown **ethers**
Cyclic peptides
Cyclophanes
Enzymes, uses
Fatty acids, uses
Glass, uses
Glycoproteins
Histones
Hormones, animal, uses
Ligands
Metallocenes
Metals, uses
Nucleic acids
Polymers, uses
Polysaccharides, uses
Receptors
Resins
Vitamins
RL: NUU (Other use, unclassified); USES (Uses)
(application using non-covalent bond between cucurbituril derivative and ligand)

IT 52-90-4, L-Cysteine, uses 56-65-5, 5'-ATP, uses 58-64-0, 5'-ADP, uses 60-29-7, Diethyl **ether**, uses 64-17-5, Ethanol, uses 67-56-1, Methanol, uses 67-66-3, Chloroform, uses 67-68-5, Dimethyl sulfoxide, uses 68-12-2, Dimethylformamide, uses 70-18-8, Glutathione, uses 71-00-1, L-Histidine, uses 73-22-3, L-Tryptophan, uses 75-05-8, Acetonitrile, uses 75-09-2, Methylene chloride, uses 76-05-1, Trifluoroacetic acid, uses 108-88-3, Toluene, uses 108-90-7, Chlorobenzene, uses 109-99-9, Tetrahydrofuran, uses 110-86-1, Pyridine, uses 111-46-6, Diglycol, uses 120-94-5, N-Methylpyrrolidine 121-44-8, Triethylamine, uses 123-91-1, Dioxane, uses 124-38-9, Carbon dioxide, uses 281-23-2, Adamantane 768-94-5, Adamantanamine 1314-23-4, Zirconium oxide, uses 1330-20-7, Xylene, uses 1336-21-6, Ammonium hydroxide 7440-21-3, Silicon, uses 7732-18-5, Water, uses 9000-92-4, Amylase 9001-54-1, Hyaluronidase 9001-92-7, Proteinase 9002-10-2, Phenoloxidase 9003-99-0, Peroxidase 9004-34-6,

**Cellulose**, uses 9012-36-6, Sepharose 9012-54-8, Cellulase 9013-79-0, Esterase 9025-56-3, Hemicellulase 9029-60-1, Lipoxygenase 9032-75-1, Pectinase 9035-73-8, Oxidase 9037-17-6 9037-80-3, Reductase 9067-74-7, Arabinosidase 9075-68-7, Pullulanase 12176-38-4, Ferrocene methylamine 12619-70-4D, Cyclodextrin, derivs. 37278-89-0, Xylanase 37341-53-0, Keratinase 42613-30-9, Ligninase 51377-41-4, Cutinase 54724-00-4, Curdlan 80262-44-8D, Cucurbituril, derivs.
RL: NUU (Other use, unclassified); USES (Uses)
(application using non-covalent bond between cucurbituril derivative and ligand)

L11 ANSWER 4 OF 11 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:1262324 CAPLUS
DOCUMENT NUMBER: 146:483399
TITLE: Preparation method of **cellulose ether** derivative in 1-alkyl-3-alkyl-imidazolinium **ionic liquid**
INVENTOR(S): Park, Young Seok; Park, Jung Ho
PATENT ASSIGNEE(S): Kolon Industries, Inc., S. Korea
SOURCE: Repub. Korean Kongkae Taeho Kongbo, No pp. given
CODEN: KRXXA7
DOCUMENT TYPE: Patent
LANGUAGE: Korean
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| KR 2006086069 | A | 20060731 | KR 2005-6937 | 20050126 |
| PRIORITY APPLN. INFO.: | | | KR 2005-6937 | 20050126 |

TI Preparation method of **cellulose ether** derivative in 1-alkyl-3-alkyl-imidazolinium **ionic liquid**
AB Provided is a method for preparing a **cellulose ether** derivative under the homogeneous reaction condition to minimize the amount of remaining reaction solvent contained in the final product. The method comprises the steps of dissolving **cellulose** in an imidazolinium-based ionic compound such as a 1-alkyl-3-alkyl-imidazolinium salt; and **etherifying** using a metal hydroxide as a catalyst to prepare a **cellulose ether** derivative Preferably the alkali **cellulose** activated by the addition of the metal hydroxide catalyst is prepared into **cellulose ether** by adding an **etherification** agent. Preferably the metal hydroxide is at least one selected from LiOH, NaOH, KOH, Ca(OH)2, Mg(OH)2, Al(OH)3 and nickel hydroxide.
ST **cellulose ether** manuf **etherification** imidazolinium **ionic liq**
IT Hydroxides (inorganic)
RL: CAT (Catalyst use); USES (Uses)
(catalyst; preparation method of **cellulose ether** derivative in 1-alkyl-3-alkyl-imidazolinium **ionic liquid**)
IT **Ionic liquids**
(preparation method of **cellulose ether** derivative in 1-alkyl-3-alkyl-imidazolinium **ionic liquid**)
IT 1305-62-0, Calcium hydroxide, uses 1309-42-8, Magnesium hydroxide 1310-58-3, Potassium hydroxide, uses 1310-65-2, Lithium hydroxide 1310-73-2, Sodium hydroxide, uses 12054-48-7, Nickel hydroxide

21645-51-2, Aluminum hydroxide, uses
RL: CAT (Catalyst use); USES (Uses)
(catalyst; preparation method of **cellulose ether** derivative in 1-alkyl-3-alkyl-imidazolinium **ionic liquid**)

IT 9004-34-6DP, **Cellulose, ether**
RL: IMF (Industrial manufacture); PREP (Preparation)
(preparation method of **cellulose ether** derivative in 1-alkyl-3-alkyl-imidazolinium **ionic liquid**)

IT 288-32-4D, Imidazole, N-alkyl salts
RL: NUU (Other use, unclassified); USES (Uses)
(preparation method of **cellulose ether** derivative in 1-alkyl-3-alkyl-imidazolinium **ionic liquid**)

L11 ANSWER 5 OF 11 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:367288 CAPLUS
DOCUMENT NUMBER: 144:398457
TITLE: Indicator device having an active agent encapsulated in an electrospun nanofiber
INVENTOR(S): McDonnell, Gerald E.; Fiorello, Anthony; Smith, Daniel J.
PATENT ASSIGNEE(S): Steris Inc., USA
SOURCE: U.S. Pat. Appl. Publ., 10 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| US 2006083657 | A1 | 20060420 | US 2004-965350 | 20041014 |
| AU 2005333237 | A1 | 20061228 | AU 2005-333237 | 20050909 |
| CA 2582979 | A1 | 20061228 | CA 2005-2582979 | 20050909 |
| WO 2006137848 | A2 | 20061228 | WO 2005-US32448 | 20050909 |
| WO 2006137848 | A3 | 20070802 | | |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA | | | | |
| EP 1799805 | A2 | 20070627 | EP 2005-858110 | 20050909 |
| R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU | | | | |
| IN 2007MN00501 | A | 20070803 | IN 2007-MN501 | 20070405 |

PRIORITY APPLN. INFO.:
US 2004-965350 A 20041014
WO 2005-US32448 W 20050909

IT Antimicrobial agents
Biocides
Cations

Chemiluminescence spectroscopy
Cyanine dyes
Fluorometry
Indicators
**Ionic liquids**
Microelectrodes
Mycobacterium
Nanofibers
Phosphorescence
Plasticizers
Waters
(indicator device having active agent encapsulated in electrospun nanofiber)

IT Azo compounds
Carbonyl complexes
Carotenes, biological studies
Crown **ethers**
Nitro compounds
Nitroso compounds
Prion proteins
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(indicator device having active agent encapsulated in electrospun nanofiber)

IT 9002-89-5, Polyvinyl alcohol 9002-98-6 9003-05-8, Polyacrylamide 9003-39-8 9004-34-6, **Cellulose**, biological studies
9004-57-3, Ethylcellulose 24980-41-4, Polycaprolactone 25248-42-4, Polycaprolactone 26913-06-4, Poly[imino(1,2-ethanediyl)] 76600-67-4, Tecoflex
RL: BUU (Biological use, unclassified); DEV (Device component use); BIOL (Biological study); USES (Uses)
(indicator device having active agent encapsulated in electrospun nanofiber)

L11 ANSWER 6 OF 11 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:1255766 CAPLUS
DOCUMENT NUMBER: 143:488016
TITLE: **Ionic liquids** used as solvents in titrimetric analysis
INVENTOR(S): Bosmann, Andreas; Schubert, Thomas Juergen Siegfried
PATENT ASSIGNEE(S): Germany
SOURCE: Brit. UK Pat. Appl., 17 pp.
CODEN: BAXXDU
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| GB 2414553 | A | 20051130 | GB 2005-10772 | 20050526 |
| DE 102004025756 | A1 | 20051215 | DE 2004-102004025756 | 20040526 |
| US 2005287677 | A1 | 20051229 | US 2005-136900 | 20050525 |
| JP 2005338092 | A | 20051208 | JP 2005-154529 | 20050526 |
| PRIORITY APPLN. INFO.: | | | DE 2004-102004025756A | 20040526 |

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI **Ionic liquids** used as solvents in titrimetric analysis

AB **Ionic liqs.** provide new solvents for the titrimetric anal. of substances or mixts. of substances which are insol. or poorly soluble in conventional solvents, such as e.g. proteins, **cellulose**, etc. This allows direct homogeneous titration of ingredients of these substances. In addition to the substances which are to be analyzed the titration reagents may advantageously also be dissolved in an **ionic liquid**

ST **ionic liq** solvent titrimetry

IT Named reagents and solutions
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Karl Fischer's; **ionic liqs.** as solvents for titrimetric anal.)

IT Cheese
(Parmesan; **ionic liqs.** as solvents for titrimetric anal.)

IT Sulfoxides
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(alkyl, dialkylsulfoxides; **ionic liqs.** as solvents for titrimetric anal.)

IT Fats and Glyceridic oils, analysis
RL: AMX (Analytical matrix); ANST (Analytical study)
(butter; **ionic liqs.** as solvents for titrimetric anal.)

IT Titration
(conductometric; **ionic liqs.** as solvents for titrimetric anal.)

IT Titration
(coulometric; **ionic liqs.** as solvents for titrimetric anal.)

IT Alkanes, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(halo; **ionic liqs.** as solvents for titrimetric anal.)

IT Aromatic compounds
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(haloaroms.; **ionic liqs.** as solvents for titrimetric anal.)

IT Corylus avellana
Food analysis
Hygroscopicity
Indicators
**Ionic liquids**
NMR spectroscopy
Solvents
Titration
(**ionic liqs.** as solvents for titrimetric anal.)

IT Alcohols, analysis
Alkanes, analysis
Amides, analysis
Amines, analysis
Aromatic compounds
**Ethers**, analysis
Phosphonium compounds
Quaternary ammonium compounds, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(**ionic liqs.** as solvents for titrimetric anal.)

IT Titration
(potentiometric; **ionic liqs.** as solvents for titrimetric anal.)
IT Titration
(spectrophotometric; **ionic liqs.** as solvents for titrimetric anal.)
IT Titration
(thermometric; **ionic liqs.** as solvents for titrimetric anal.)
IT 7732-18-5, Water, analysis
RL: ANT (Analyte); ANST (Analytical study)
(**ionic liqs.** as solvents for titrimetric anal.)
IT 174899-82-2 258864-54-9, Trihexyltetradecylphosphonium chloride
342573-75-5 792188-85-3
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(**ionic liqs.** as solvents for titrimetric anal.)

L11 ANSWER 7 OF 11 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:523500 CAPLUS
DOCUMENT NUMBER: 143:28326
TITLE: **Etherification** of **cellulose** in **ionic liquid** solutions
INVENTOR(S): Myllymaeki, Vesa; Aksela, Reijo
PATENT ASSIGNEE(S): Kemira Oyj, Finland
SOURCE: PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2005054298 | A1 | 20050616 | WO 2004-FI730 | 20041202 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| FI 2003001763 | A | 20050604 | FI 2003-1763 | 20031203 |
| FI 116140 | B1 | 20050930 | | |
| CA 2548007 | A1 | 20050616 | CA 2004-2548007 | 20041202 |
| EP 1689788 | A1 | 20060816 | EP 2004-801227 | 20041202 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS | | | | |
| US 2007112185 | A1 | 20070517 | US 2007-581491 | 20070116 |

PRIORITY APPLN. INFO.: FI 2003-1763 A 20031203
WO 2004-FI730 W 20041202

OTHER SOURCE(S): MARPAT 143:28326
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI **Etherification** of **cellulose** in **ionic liquid** solutions

AB **Cellulose** is mixed and dissolved in an **ionic liquid** solvent and the solution is treated with an **etherifying** agent in the presence of inorg. base to form a **cellulose ether**, which is subsequently separated from the solution The dissoln. and the **etherification** are carried out in the absence of organic base and in the substantial absence of H2O. Microwave irradiation and/or pressure can be applied to assist in dissoln. and **etherification** . Thus, 50 mg **cellulose** was dissolved in 5 g 1-butyl-3-methylimidazolium chloride (m. 60°) with the aid of microwaves to give 1% solution ClCH2CO2H (2.05. . . equiv of solid NaOH, the reaction mixture was heated for 2 h at 100° under microwave radiation and the resulting CM-**cellulose** was precipitated with MeOH, washed with MeOH and 80% aqueous MeOH, and dried.

ST **cellulose etherification ionic liq** solvent microwave; butylmethylimidazolium chloride solvent CM **cellulose** manuf; chloroacetic acid **etherification cellulose** butylmethylimidazolium chloride solvent

IT **Etherification**
**Ionic liquids**
(**etherification** of **cellulose** in **ionic liquid** solution)

IT Microwave
(**etherification** of **cellulose** in **ionic liquid** solution in presence of)

IT 9004-32-4P, CM **cellulose** sodium salt
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**etherification** of **cellulose** in **ionic liquid** solution)

IT 9004-34-6, **Cellulose**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**etherification** of **cellulose** in **ionic liquid** solution)

IT 79-11-8, Chloroacetic acid, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**etherification** of **cellulose**; **etherification** of **cellulose** in **ionic liquid** solution)

IT 79917-90-1, 1-Butyl-3-methylimidazolium chloride
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent; **etherification** of **cellulose** in **ionic liquid** solution)

L11 ANSWER 8 OF 11 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:443826 CAPLUS
DOCUMENT NUMBER: 143:135076
TITLE: **Ionic Liquids** and Paper
AUTHOR(S): Przybysz, Kazimierz; Drzewinska, Ewa; Stanislawska, Anna; Wysocka-Robak, Agnieszka; Cieniecka-Roslonkiewicz, Anna; Foksowicz-Flaczyk, Joanna; Pernak, Juliusz
CORPORATE SOURCE: Institute of Papermaking and Printing, Lodz University of Technology, Lodz, 90-924, Pol.
SOURCE: Industrial & Engineering Chemistry Research (2005), 44(13), 4599-4604

CODEN: IECRED; ISSN: 0888-5885
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI **Ionic Liquids** and Paper

AB The influence of **ionic liqs.** (ILs) on the characteristics of paper was studied. The ILs used include 3-alkyl-1-methylimidazolium tetrafluoroborates and prepared 3-alkoxymethyl-1-methylimidazolium tetrafluoroborates and 3-alkoxymethyl-1-methylimidazolium. . . impregnate paper, affecting its strength and other phys. parameters. The IL-treated paper had decreased strength, which resulted from weakening of **cellulose** hydrogen bonds and the paper wettability improved. Paper treated with 1-methyl-3-octyloxymethylimidazolium tetrafluoroborate proved to be fully resistant to activity of. . .

ST paper treatment **ionic liq** methylimidazolium tetrafluoroborate trifluoromethanesulfonylimide strength; mold resistant paper **ionic liq** treatment

IT Alternaria alternata
Aspergillus amstelodami
Aspergillus niger
Aspergillus terreus
Aureobasidium pullulans
Chaetomium globosum
Cladosporium herbarum
Fungicides
**Ionic liquids**
Paecilomyces variotii
Paper
Penicillium brevi-compactum
Penicillium funiculosum
Penicillium ochro-chloron
Scopulariopsis brevicaulis
Stachybotrys chartarum
Trichoderma viride
Wettability
(mech. properties and resistant to mold and fungus of paper treated with methylimidazolium based **ionic liqs.**)

IT 99874-27-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; mech. properties and resistant to mold and fungus of paper treated with methylimidazolium based **ionic liqs**.)

IT 616-47-7, 1-Methylimidazole 39979-92-5, Chloromethylhexyl **ether**
RL: RCT (Reactant); RACT (Reactant or reagent)
(mech. properties and resistant to mold and fungus of paper treated with methylimidazolium based **ionic liqs.**)

IT 244193-52-0P 244193-56-4P 350701-79-0P 350701-81-4P 350701-83-6P
350701-85-8P 350701-87-0P 852951-58-7P 859213-79-9P 859213-80-2P
859213-81-3P 859213-82-4P 859213-83-5P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(mech. properties and resistant to mold and fungus of paper treated with methylimidazolium based **ionic liqs.**)

L11 ANSWER 9 OF 11 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:270816 CAPLUS
DOCUMENT NUMBER: 143:479529
TITLE: Unconventional dissolution and derivatization of **cellulose**
AUTHOR(S): Fischer, Steffen
CORPORATE SOURCE: Fraunhofer Institute of Applied Polymer Research, Potsdam, 14476, Germany
SOURCE: Lenzinger Berichte (2004), 83, 71-78
CODEN: LEBEAW; ISSN: 0024-0907
PUBLISHER: Lenzing AG
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Unconventional dissolution and derivatization of **cellulose**

AB The preparation of **cellulose** solns. is important for derivatization and blend formation of the natural polymer. Besides solvents like CS2/NaOH and NMMNO*H2O unconventional solvent systems can be applied for dissoln. of **cellulose.** This group of solvents includes inorg. molten salts and **ionic liqs.** Inorg. molten salts can be used as efficient solvents for **cellulose** in a wide range of d.p. Furthermore molten salts can be applied as reaction medium for the derivatization of **cellulose.** For both dissoln. and derivatization of **cellulose** the knowledge of the solution state as well as information about chemical interactions with the solvent system is essential. Using the melts of $LiClO_4 \cdot 3H_2O$, $NaSCN/KSCN/LiSCN \cdot 2H_2O$ and $LiCl/ZnCl_2/H_2O$ as **cellulose** solvents factors which determine the dissolving ability will be discussed. Besides the specific structure of the molten salt hydrate, the. . . for the dissolving capability of a molten salt hydrate system. The application of inorg. molten salts as a medium for **cellulose** functionalization is demonstrated for **cellulose** carboxymethylation and acetylation.

ST **cellulose** dissoln derivatization inorg molten salt; CM **cellulose** prepn inorg molten salt medium; acetylcellulose prepn inorg molten salt medium

IT Dissolution
Esterification
**Etherification**
(unconventional dissoln. and derivatization of **cellulose** using inorg. molten salts)

IT 333-20-0, Potassium thiocyanate 540-72-7, Sodium thiocyanate 7447-41-8, Lithium chloride, uses 7646-85-7, Zinc chloride, uses 13453-78-6, Lithium perchlorate trihydrate 84372-58-7, Lithium thiocyanate dihydrate
RL: NUU (Other use, unclassified); USES (Uses)
(unconventional dissoln. and derivatization of **cellulose** using inorg. molten salts)

IT 9004-34-6, **Cellulose**, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(unconventional dissoln. and derivatization of **cellulose** using inorg. molten salts)

IT 9004-32-4P, CM **cellulose** sodium salt 9004-35-7P, Acetylcellulose

RL: SPN (Synthetic preparation); PREP (Preparation)
(unconventional dissoln. and derivatization of **cellulose** using inorg. molten salts)

L11 ANSWER 10 OF 11 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:158715 CAPLUS
DOCUMENT NUMBER: 142:242565
TITLE: Dissolution and delignification of lignocellulosic materials with **ionic liquid** solvent under microwave irradiation
INVENTOR(S): Myllymaeki, Vesa; Aksela, Reijo
PATENT ASSIGNEE(S): Kemira Oyj, Finland
SOURCE: PCT Int. Appl., 25 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2005017001 | A1 | 20050224 | WO 2004-FI476 | 20040813 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| FI 2003001156 | A | 20050216 | FI 2003-1156 | 20030815 |
| FI 115835 | B1 | 20050729 | | |
| CA 2532989 | A1 | 20050224 | CA 2004-2532989 | 20040813 |
| EP 1654307 | A1 | 20060510 | EP 2004-742219 | 20040813 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK | | | | |
| BR 2004013435 | A | 20061010 | BR 2004-13435 | 20040813 |

PRIORITY APPLN. INFO.: FI 2003-1156 A 20030815
WO 2004-FI476 W 20040813

OTHER SOURCE(S): MARPAT 142:242565
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Dissolution and delignification of lignocellulosic materials with **ionic liquid** solvent under microwave irradiation

AB Wood, straw, and other natural lignocellulosic materials can be dissolved in an **ionic liquid** solvent under microwave irradiation and/or under pressure, and **cellulose** and other organic compds., such as lignin and extractives, can also be separated from the solution by precipitating with non-solvent , such as water, alcs., ketones, and **ethers**, of **cellulose.** Thus, plywood sawdust was dissolved in 1-butyl-3-methyl-imidazolium chloride under microwave irradiation

ST dissoln delignification lignocellulosic **ionic liq** solvent microwave irradn; plywood sawdust wood straw

butylmethylimidazolium chloride dissoln microwave irradn

IT Wood
(chips; dissoln. and delignification of lignocellulosic materials with **ionic liquid** solvent under microwave irradiation)

IT Dissolution
Straw
Wood
(dissoln. and delignification of lignocellulosic materials with **ionic liquid** solvent under microwave irradiation)

IT Solvents
(**ionic, liquid**; dissoln. and delignification of lignocellulosic materials with **ionic liquid** solvent under microwave irradiation)

IT Microwave
(irradiation; dissoln. and delignification of lignocellulosic materials with **ionic liquid** solvent under microwave irradiation)

IT Wood boards
(plywood, sawdust; dissoln. and delignification of lignocellulosic materials with **ionic liquid** solvent under microwave irradiation)

IT Sawdust
(plywood; dissoln. and delignification of lignocellulosic materials with **ionic liquid** solvent under microwave irradiation)

IT Wood
(soft; dissoln. and delignification of lignocellulosic materials with **ionic liquid** solvent under microwave irradiation)

IT Alcohols, uses
**Ethers**, uses
Ketones, uses
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; dissoln. and delignification of lignocellulosic materials with **ionic liquid** solvent under microwave irradiation)

IT 9004-34-6P, **Cellulose**, preparation 9005-53-2P, Lignin, preparation
RL: PUR (Purification or recovery); PREP (Preparation)
(dissoln. and delignification of lignocellulosic materials with **ionic liquid** solvent under microwave irradiation)

IT 79917-90-1, 1-Butyl-3-methyl-imidazolium chloride
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; dissoln. and delignification of lignocellulosic materials with **ionic liquid** solvent under microwave irradiation)

L11 ANSWER 11 OF 11 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:802385 CAPLUS
DOCUMENT NUMBER: 141:298755
TITLE: Ionically conductive membranes for protection of active metal anodes and battery cells
INVENTOR(S): Visco, Steven J.; Nimon, Yevgeniy S.; Katz, Bruce D.
PATENT ASSIGNEE(S): Polyplus Battery Company, USA
SOURCE: U.S. Pat. Appl. Publ., 25 pp., Cont.-in-part of U.S. Ser. No. 731,771.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| US 2004191617 | A1 | 20040930 | US 2004-772228 | 20040203 |
| US 2004126653 | A1 | 20040701 | US 2003-686189 | 20031014 |
| US 7282296 | B2 | 20071016 | | |
| US 2004142244 | A1 | 20040722 | US 2003-731771 | 20031205 |
| US 7282302 | B2 | 20071016 | | |
| WO 2005038962 | A2 | 20050428 | WO 2004-US33372 | 20041008 |
| WO 2005038962 | A3 | 20051229 | | |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

| | | | | | |
|---|---|---|---|---|---|
| US 2005100793 | A1 | 20050512 | US 2004-986441 | | 20041110 |
| PRIORITY APPLN. INFO.: | | | US 2002-418899P | P | 20021015 |
| | | | US 2003-511710P | P | 20031014 |
| | | | US 2003-686189 | A2 | 20031014 |
| | | | US 2003-518948P | P | 20031110 |
| | | | US 2003-731771 | A2 | 20031205 |
| | | | US 2004-772228 | A | 20040203 |

IT Battery anodes
Ceramics
Gelation agents
Glass ceramics
**Ionic liquids**
Primary batteries
Secondary batteries
(ionically conductive membranes for protection of active metal anodes and battery cells)

IT Esters, uses
**Ethers**, uses
Fluoropolymers, uses
Halides
Metallic glasses
Nitrides
Phosphonium compounds
Polyoxyalkylenes, uses
Polysulfides
RL: DEV (Device component use); USES (Uses)
(ionically conductive membranes for protection of active metal anodes and battery cells)

IT 79-20-9, Methyl acetate 96-47-9, 2-Methyltetrahydrofuran 105-58-8, Diethyl carbonate 107-31-3, Methyl formate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 463-79-6D, Carbonic acid, organic esters 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 646-06-0, 1,3-Dioxolane 1072-47-5, 1,3-Dioxolane, 4-methyl- 1313-13-9, Manganese dioxide, uses 1313-27-5, Molybdenumoxide moo3, uses 1314-62-1, Vanadium oxide (V2O5), uses 1317-37-9, Iron sulfide Fes 1317-38-0, Copper oxide (CuO), uses 1317-40-4, Copper sulfide Cus 7439-93-2, Lithium, uses 7439-93-2D, Lithium, intercalation compound

7447-41-8, Lithium chloride (LiCl), uses 7550-35-8, Lithium bromide (LiBr) 7704-34-9, Sulfur, uses 7784-01-2, Silver chromate 7789-24-4, Lithium fluoride, uses 9004-67-5, Methyl **cellulose**
10377-51-2, Lithium iodide 11105-02-5, Silver vanadium oxide
12037-42-2, Vanadium oxide v6o13 12039-13-3, Titanium sulfide (TiS2)
12057-29-3, Lithium phosphide li3p 12068-85-8, Iron sulfide fes2
12789-09-2, Copper vanadium oxide 15365-14-7, Iron lithium phosphate felipo4 16969-45-2D, Pyridinium, derivs. 17009-90-4D, Imidazolium, derivs. 24937-79-9, Pvdf 25014-41-9, Polyacrylonitrile 25322-68-3, Peo 26134-62-3, Lithium nitride (Li3N) 39300-70-4, Lithium nickeloxide 39457-42-6, Lithium manganese oxide 52627-24-4, Cobalt lithium oxide 70780-99-3, Lisicon 77641-62-4, Nasicon 155371-19-0, 1-Ethyl-3-methylimidazolium hexafluorophosphate 184905-46-2, Lithium nitrogen phosphorus oxide 244193-50-8, 1-Hexyl-3-methylimidazolium tetrafluoroborate 328090-25-1 445473-58-5, 1-Butyl-3-methylimidazolium octyl sulfate
RL: DEV (Device component use); USES (Uses)
(ionically conductive membranes for protection of active metal anodes and battery cells)

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=> d his

     (FILE 'HOME' ENTERED AT 15:58:30 ON 26 NOV 2007)

     FILE 'CAPLUS' ENTERED AT 15:58:43 ON 26 NOV 2007
                E MYLLYMAKI/AU
L1             19 S E2
                E AKSELA/AU
L2             47 S E10 OR E11
L3             60 DUP REMOVE L1 L2 (6 DUPLICATES REMOVED)
L4             19 S L3
L5             41 S L3
L6              6 S L3 AND IONIC

     FILE 'STNGUIDE' ENTERED AT 16:00:24 ON 26 NOV 2007

     FILE 'CAPLUS' ENTERED AT 16:00:34 ON 26 NOV 2007
                E SWATLOSKI/AU
L7             91 S E4-E7
L8             83 S L7 AND "IONIC LIQUID"
L9             26 S L8 AND CELLULOSE

     FILE 'STNGUIDE' ENTERED AT 16:01:40 ON 26 NOV 2007

     FILE 'CAPLUS' ENTERED AT 16:03:16 ON 26 NOV 2007
L10           177 "IONIC LIQUID" AND CELLULOSE
L11            11 L10 AND ETHER?

=> l10 and microwave
         123811 MICROWAVE
          10771 MICROWAVES
         125649 MICROWAVE
                (MICROWAVE OR MICROWAVES)
L12            6 L10 AND MICROWAVE

=> d l12 1-6 ibib abs
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L12 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2007:763873 CAPLUS
DOCUMENT NUMBER: 147:141573
TITLE: Processes for biomass treatment with higher energy efficiency
INVENTOR(S): Gurin, Michael H.
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 21pp., Cont.-in-part of U.S. Ser. No. 309,025.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| US 2007161095 | A1 | 20070712 | US 2007-691070 | 20070326 |
| WO 2007112090 | A2 | 20071004 | WO 2007-US7430 | 20070326 |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.:

| | | |
|---|---|---|
| US 2005-593485P | P | 20050118 |
| US 2005-595167P | P | 20050613 |
| US 2006-306911 | A2 | 20060116 |
| US 2006-767403P | P | 20060325 |
| US 2006-309025 | A2 | 20060612 |

AB A high efficiency method for synthesizing biomass fuels leveraging the synergistic impact of **ionic liqs.** on both the significant gains in pretreatment of biomass and the utilization of the combination of **ionic liqs.** and carbon dioxide under supercrit. conditions for energy generation is provided. The strategic use of heat exchangers, preferably microchannel heat exchangers and microchannel reactors further increase the efficiency and performance of the system by extensive heat recovery and the direct utilization of the biomass solution as the working fluid of a thermodn. cycle.

L12 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2007:38602 CAPLUS
DOCUMENT NUMBER: 146:123422
TITLE: **Ionic liquid** reconstituted **cellulose** composites as solid support matrices with good transparency for biocatalytic reaction
INVENTOR(S): Rogers, Robin D.; Daly, Daniel T.; Turner, Megan B.; Spear, Scott K.; Holbrey, John D.
PATENT ASSIGNEE(S): The University of Alabama, USA
SOURCE: PCT Int. Appl., 73pp.

CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2007005388 | A2 | 20070111 | WO 2006-US24863 | 20060627 |
| WO 2007005388 | A3 | 20070329 | | |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

| | | | | |
|---|---|---|---|---|
| US 2007006774 | A1 | 20070111 | US 2006-475630 | 20060627 |
| PRIORITY APPLN. INFO.: | | | US 2005-694902P P | 20050629 |

OTHER SOURCE(S): MARPAT 146:123422

AB Disclosed are composites comprising regenerated **cellulose**, a first active substance, a second active substance, and a linker. Thus, microcryst. **cellulose** was dissolved in 1-butyl-3-methylimidazolium chloride using **microwave** pulse heating at 120-150°, cooled to 60° to form a super-cooled liquid, 20% (based on **cellulose**) poly(L-lysine hydrobromide) was added therein, homogenized, cast onto a glass plate, the resulting film soaked in water for at least 24 h to leach residual from the film to give a reconstituted **cellulose** film, showing good transparency.

L12 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:754555 CAPLUS
DOCUMENT NUMBER: 145:194651
TITLE: Method for complete enzymatic hydrolysis of straw **cellulose** pretreated with steam and **microwave**
INVENTOR(S): Chen, Hongzhang; Liu, Liying
PATENT ASSIGNEE(S): Institute of Process Engineering, Chinese Academy of Sciences, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 7 pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| CN 1806945 | A | 20060726 | CN 2005-10011217 | 20050120 |
| PRIORITY APPLN. INFO.: | | | CN 2005-10011217 | 20050120 |

AB The title method comprises: (1) steam-blasting straws with water content of 10-35% under steam pressure of 1.0-1.5 MPa for 2-7 min, (2) washing

with water of 50-100°C, drying, mixing with **ionic liquid** at a solid-liquid ratio of 1 : (5-50), and heating directly or by **microwave** under stirring for 5-60 min, (3) washing the treated straw with water, and (4) hydrolyzing with cellulase at below 50°C and pH 4.8 for 48-72 h. The aforementioned **ionic liquid** contains cations selected from N,N-dimethylimidazole ion, 1-ethyl-3-methylimidazole ion, 1-allyl-3-methylimidazole ion, 1-butyl-3-methylimidazole ion and 1-methyl-3-butylimidazole ion, and anions selected from chloride ion, bromide ion, acetate ion and thiocyanate ion. The method can be used to obtain enzymic hydrolysis rate of **cellulose** up to 100%.

L12 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:297680 CAPLUS
DOCUMENT NUMBER: 146:123861
TITLE: Dissolution of **cellulose** with **ionic liquids** and its application: a mini-review
AUTHOR(S): Zhu, Shengdong; Wu, Yuanxin; Chen, Qiming; Yu, Ziniu; Wang, Cunwen; Jin, Shiwei; Ding, Yigang; Wu, Gang
CORPORATE SOURCE: School of Chemical Engineering and Pharmacy, Hubei Key Laboratory of Novel Chemical Reactor and Green Chemical Technology, Wuhan Institute of Chemical Technology, Wuhan, 430073, Peop. Rep. China
SOURCE: Green Chemistry (2006), 8(4), 325-327
CODEN: GRCHFJ; ISSN: 1463-9262
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review. In this paper, the dissoln. of **cellulose** with **ionic liqs.** and its application were reviewed. **Cellulose** can be dissolved, without derivation, in some hydrophilic **ionic liqs.**, such as 1-butyl-3-methylimidazolium chloride (BMIMCl) and 1-allyl-3-methylimidazolium chloride (AMIMCl). **Microwave** heating significantly accelerates the dissoln. process. **Cellulose** can be easily regenerated from its **ionic liquid** solns. by addition of water, ethanol or acetone. After its regeneration, the **ionic liqs.** can be recovered and reused. Fractionation of lignocellulosic materials and preparation of **cellulose** derivs. and composites are two of its typical applications. Although some basic studies, such as economical syntheses of **ionic liqs.** and studies of **ionic liquid** toxicol., are still much needed, commercialization of these processes has made great progress in recent years.
REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:523500 CAPLUS
DOCUMENT NUMBER: 143:28326
TITLE: Etherification of **cellulose** in **ionic liquid** solutions
INVENTOR(S): Myllymaeki, Vesa; Aksela, Reijo
PATENT ASSIGNEE(S): Kemira Oyj, Finland
SOURCE: PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2005054298 | A1 | 20050616 | WO 2004-FI730 | 20041202 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| FI 2003001763 | A | 20050604 | FI 2003-1763 | 20031203 |
| FI 116140 | B1 | 20050930 | | |
| CA 2548007 | A1 | 20050616 | CA 2004-2548007 | 20041202 |
| EP 1689788 | A1 | 20060816 | EP 2004-801227 | 20041202 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS | | | | |
| US 2007112185 | A1 | 20070517 | US 2007-581491 | 20070116 |
| PRIORITY APPLN. INFO.: | | | FI 2003-1763 A | 20031203 |
| | | | WO 2004-FI730 W | 20041202 |

OTHER SOURCE(S): MARPAT 143:28326

AB **Cellulose** is mixed and dissolved in an **ionic liquid** solvent and the solution is treated with an etherifying agent in the presence of inorg. base to form a **cellulose** ether, which is subsequently separated from the solution The dissoln. and the etherification are carried out in the absence of organic base and in the substantial absence of H2O. **Microwave** irradiation and/or pressure can be applied to assist in dissoln. and etherification. Thus, 50 mg **cellulose** was dissolved in 5 g 1-butyl-3-methylimidazolium chloride (m. 60°) with the aid of **microwaves** to give 1% solution ClCH2CO2H (2.05 equiv) was added to the solution followed by 3.25 equiv of solid NaOH, the reaction mixture was heated for 2 h at 100° under **microwave** radiation and the resulting CM-**cellulose** was precipitated with MeOH, washed with MeOH and 80% aqueous MeOH, and dried.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:158715 CAPLUS
DOCUMENT NUMBER: 142:242565
TITLE: Dissolution and delignification of lignocellulosic materials with **ionic liquid** solvent under **microwave** irradiation
INVENTOR(S): Myllymaeki, Vesa; Aksela, Reijo
PATENT ASSIGNEE(S): Kemira Oyj, Finland
SOURCE: PCT Int. Appl., 25 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2005017001 | A1 | 20050224 | WO 2004-FI476 | 20040813 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| FI 2003001156 | A | 20050216 | FI 2003-1156 | 20030815 |
| FI 115835 | B1 | 20050729 | | |
| CA 2532989 | A1 | 20050224 | CA 2004-2532989 | 20040813 |
| EP 1654307 | A1 | 20060510 | EP 2004-742219 | 20040813 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK | | | | |
| BR 2004013435 | A | 20061010 | BR 2004-13435 | 20040813 |

PRIORITY APPLN. INFO.: FI 2003-1156 A 20030815
WO 2004-FI476 W 20040813

OTHER SOURCE(S): MARPAT 142:242565

AB Wood, straw, and other natural lignocellulosic materials can be dissolved in an **ionic liquid** solvent under **microwave** irradiation and/or under pressure, and **cellulose** and other organic compds., such as lignin and extractives, can also be separated from the solution by precipitating with non-solvent , such as water, alcs., ketones, and ethers, of **cellulose.** Thus, plywood sawdust was dissolved in 1-butyl-3-methyl-imidazolium chloride under **microwave** irradiation

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> "ionic liquid" and (carbohydrate or polysaccharide or sugar or cellulose or starch or chitin or pullulan or xanthan or dextran or glucan) adn microwave
MISSING OPERATOR GLUCAN) ADN
The search profile that was entered contains terms or
nested terms that are not separated by a logical operator.

=> "ionic liquid" and (carbohydrate or polysaccharide or sugar or cellulose or starch or chitin or pullulan or xanthan or dextran or glucan) and microwave
284921 "IONIC"
511 "IONICS"
285185 "IONIC"
("IONIC" OR "IONICS")
800777 "LIQUID"
138530 "LIQUIDS"
904338 "LIQUID"
("LIQUID" OR "LIQUIDS")
1105042 "LIQ"
104871 "LIQS"

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   1145172 "LIQ"
             ("LIQ" OR "LIQS")
   1588658 "LIQUID"
             ("LIQUID" OR "LIQ")
     11079 "IONIC LIQUID"
             ("IONIC"(W)"LIQUID")
    133492 CARBOHYDRATE
    155004 CARBOHYDRATES
    224674 CARBOHYDRATE
             (CARBOHYDRATE OR CARBOHYDRATES)
     63148 POLYSACCHARIDE
     79822 POLYSACCHARIDES
    100435 POLYSACCHARIDE
             (POLYSACCHARIDE OR POLYSACCHARIDES)
    269177 SUGAR
    132316 SUGARS
    340895 SUGAR
             (SUGAR OR SUGARS)
    360710 CELLULOSE
      4428 CELLULOSES
    361213 CELLULOSE
             (CELLULOSE OR CELLULOSES)
    171072 STARCH
      9587 STARCHES
    172082 STARCH
             (STARCH OR STARCHES)
     17140 CHITIN
       313 CHITINS
     17155 CHITIN
             (CHITIN OR CHITINS)
      3654 PULLULAN
      1924 PULLULANS
      5169 PULLULAN
             (PULLULAN OR PULLULANS)
     13274 XANTHAN
        64 XANTHANS
     13278 XANTHAN
             (XANTHAN OR XANTHANS)
     37894 DEXTRAN
      4277 DEXTRANS
     38751 DEXTRAN
             (DEXTRAN OR DEXTRANS)
     15475 GLUCAN
      4421 GLUCANS
     16648 GLUCAN
             (GLUCAN OR GLUCANS)
    123811 MICROWAVE
     10771 MICROWAVES
    125649 MICROWAVE
             (MICROWAVE OR MICROWAVES)
L13          9 "IONIC LIQUID" AND (CARBOHYDRATE OR POLYSACCHARIDE OR SUGAR OR
               CELLULOSE OR STARCH OR CHITIN OR PULLULAN OR XANTHAN OR DEXTRAN
              OR GLUCAN) AND MICROWAVE

=> d l13 1-9 ibib abs

L13  ANSWER 1 OF 9  CAPLUS  COPYRIGHT 2007 ACS on STN
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ACCESSION NUMBER: 2007:763873 CAPLUS
DOCUMENT NUMBER: 147:141573
TITLE: Processes for biomass treatment with higher energy efficiency
INVENTOR(S): Gurin, Michael H.
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 21pp., Cont.-in-part of U.S. Ser. No. 309,025.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| US 2007161095 | A1 | 20070712 | US 2007-691070 | 20070326 |
| WO 2007112090 | A2 | 20071004 | WO 2007-US7430 | 20070326 |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.:

| | | |
|---|---|---|
| US 2005-593485P | P | 20050118 |
| US 2005-595167P | P | 20050613 |
| US 2006-306911 | A2 | 20060116 |
| US 2006-767403P | P | 20060325 |
| US 2006-309025 | A2 | 20060612 |

AB A high efficiency method for synthesizing biomass fuels leveraging the synergistic impact of **ionic liqs.** on both the significant gains in pretreatment of biomass and the utilization of the combination of **ionic liqs.** and carbon dioxide under supercrit. conditions for energy generation is provided. The strategic use of heat exchangers, preferably microchannel heat exchangers and microchannel reactors further increase the efficiency and performance of the system by extensive heat recovery and the direct utilization of the biomass solution as the working fluid of a thermodn. cycle.

L13 ANSWER 2 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2007:38602 CAPLUS
DOCUMENT NUMBER: 146:123422
TITLE: **Ionic liquid** reconstituted **cellulose** composites as solid support matrices with good transparency for biocatalytic reaction
INVENTOR(S): Rogers, Robin D.; Daly, Daniel T.; Turner, Megan B.; Spear, Scott K.; Holbrey, John D.
PATENT ASSIGNEE(S): The University of Alabama, USA
SOURCE: PCT Int. Appl., 73pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent

LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2007005388 | A2 | 20070111 | WO 2006-US24863 | 20060627 |
| WO 2007005388 | A3 | 20070329 | | |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

| | | | | |
|---|---|---|---|---|
| US 2007006774 | A1 | 20070111 | US 2006-475630 | 20060627 |
| PRIORITY APPLN. INFO.: | | | US 2005-694902P P | 20050629 |

OTHER SOURCE(S): MARPAT 146:123422

AB Disclosed are composites comprising regenerated **cellulose**, a first active substance, a second active substance, and a linker. Thus, microcryst. **cellulose** was dissolved in 1-butyl-3-methylimidazolium chloride using **microwave** pulse heating at 120-150°, cooled to 60° to form a super-cooled liquid, 20% (based on **cellulose**) poly(L-lysine hydrobromide) was added therein, homogenized, cast onto a glass plate, the resulting film soaked in water for at least 24 h to leach residual from the film to give a reconstituted **cellulose** film, showing good transparency.

L13 ANSWER 3 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:754555 CAPLUS
DOCUMENT NUMBER: 145:194651
TITLE: Method for complete enzymatic hydrolysis of straw **cellulose** pretreated with steam and **microwave**
INVENTOR(S): Chen, Hongzhang; Liu, Liying
PATENT ASSIGNEE(S): Institute of Process Engineering, Chinese Academy of Sciences, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 7 pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| CN 1806945 | A | 20060726 | CN 2005-10011217 | 20050120 |
| PRIORITY APPLN. INFO.: | | | CN 2005-10011217 | 20050120 |

AB The title method comprises: (1) steam-blasting straws with water content of 10-35% under steam pressure of 1.0-1.5 MPa for 2-7 min, (2) washing with water of 50-100°C, drying, mixing with **ionic liquid** at a solid-liquid ratio of 1 : (5-50), and heating directly or

by **microwave** under stirring for 5-60 min, (3) washing the treated straw with water, and (4) hydrolyzing with cellulase at below 50°C and pH 4.8 for 48-72 h. The aforementioned **ionic liquid** contains cations selected from N,N-dimethylimidazole ion, 1-ethyl-3-methylimidazole ion, 1-allyl-3-methylimidazole ion, 1-butyl-3-methylimidazole ion and 1-methyl-3-butylimidazole ion, and anions selected from chloride ion, bromide ion, acetate ion and thiocyanate ion. The method can be used to obtain enzymic hydrolysis rate of **cellulose** up to 100%.

L13 ANSWER 4 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:559722 CAPLUS
DOCUMENT NUMBER: 146:338072
TITLE: Enzyme-catalyzed regioselective synthesis of **sugar** esters and related compounds
AUTHOR(S): Kennedy, John F.; Kumar, Harish; Panesar, Parmjit S.; Marwaha, Satwinder S.; Goyal, Rita; Parmar, Anupama; Kaur, Sukhwinder
CORPORATE SOURCE: Birmingham Carbohydrate and Protein Technology Group, School of Chemistry, University of Birmingham, Birmingham, B15 2TT, UK
SOURCE: Journal of Chemical Technology and Biotechnology (2006), 81(6), 866-876
CODEN: JCTBED; ISSN: 0268-2575
PUBLISHER: John Wiley & Sons Ltd.
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB In this review, a comprehensive and illustrative survey is made of the regioselective synthesis of esters of **sugars** and related compds. using lipases. The main emphasis has been given to the screening and use of com. available lipases for the enzymic esterification of neutral monosaccharides, disaccharides, **sugar** alcs. and their selected ether and ester derivs. The effect of solvents and solubilizing agents in improving the yields of the resultant **sugar** fatty acid esters has been incorporated. Further, solvent-free esterification with molten fatty acids, use of **ionic liqs.** and **microwave** radiations for improvement in the methodol. have also been discussed.
REFERENCE COUNT: 79 THERE ARE 79 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 5 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:297680 CAPLUS
DOCUMENT NUMBER: 146:123861
TITLE: Dissolution of **cellulose** with **ionic liquids** and its application: a mini-review
AUTHOR(S): Zhu, Shengdong; Wu, Yuanxin; Chen, Qiming; Yu, Ziniu; Wang, Cunwen; Jin, Shiwei; Ding, Yigang; Wu, Gang
CORPORATE SOURCE: School of Chemical Engineering and Pharmacy, Hubei Key Laboratory of Novel Chemical Reactor and Green Chemical Technology, Wuhan Institute of Chemical Technology, Wuhan, 430073, Peop. Rep. China
SOURCE: Green Chemistry (2006), 8(4), 325-327
CODEN: GRCHFJ; ISSN: 1463-9262
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review. In this paper, the dissoln. of **cellulose** with

**ionic liqs.** and its application were reviewed. **Cellulose** can be dissolved, without derivation, in some hydrophilic **ionic liqs.**, such as 1-butyl-3-methylimidazolium chloride (BMIMCl) and 1-allyl-3-methylimidazolium chloride (AMIMCl). **Microwave** heating significantly accelerates the dissoln. process. **Cellulose** can be easily regenerated from its **ionic liquid** solns. by addition of water, ethanol or acetone. After its regeneration, the **ionic liqs.** can be recovered and reused. Fractionation of lignocellulosic materials and preparation of **cellulose** derivs. and composites are two of its typical applications. Although some basic studies, such as economical syntheses of **ionic liqs.** and studies of **ionic liquid** toxicol., are still much needed, commercialization of these processes has made great progress in recent years.

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 6 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:523500 CAPLUS
DOCUMENT NUMBER: 143:28326
TITLE: Etherification of **cellulose** in **ionic liquid** solutions
INVENTOR(S): Myllymaeki, Vesa; Aksela, Reijo
PATENT ASSIGNEE(S): Kemira Oyj, Finland
SOURCE: PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2005054298 | A1 | 20050616 | WO 2004-FI730 | 20041202 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| FI 2003001763 | A | 20050604 | FI 2003-1763 | 20031203 |
| FI 116140 | B1 | 20050930 | | |
| CA 2548007 | A1 | 20050616 | CA 2004-2548007 | 20041202 |
| EP 1689788 | A1 | 20060816 | EP 2004-801227 | 20041202 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS | | | | |
| US 2007112185 | A1 | 20070517 | US 2007-581491 | 20070116 |

PRIORITY APPLN. INFO.: FI 2003-1763 A 20031203
WO 2004-FI730 W 20041202

OTHER SOURCE(S): MARPAT 143:28326

AB **Cellulose** is mixed and dissolved in an **ionic liquid** solvent and the solution is treated with an etherifying agent in

the presence of inorg. base to form a **cellulose** ether, which is subsequently separated from the solution The dissoln. and the etherification are carried out in the absence of organic base and in the substantial absence of H2O. **Microwave** irradiation and/or pressure can be applied to assist in dissoln. and etherification. Thus, 50 mg **cellulose** was dissolved in 5 g 1-butyl-3-methylimidazolium chloride (m. 60°) with the aid of **microwaves** to give 1% solution ClCH2CO2H (2.05 equiv) was added to the solution followed by 3.25 equiv of solid NaOH, the reaction mixture was heated for 2 h at 100° under **microwave** radiation and the resulting CM-**cellulose** was precipitated with MeOH, washed with MeOH and 80% aqueous MeOH, and dried.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 7 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:239036 CAPLUS
DOCUMENT NUMBER: 142:299721
TITLE: Esterification of **starch** under **microwave** irradiation and pressure
INVENTOR(S): Myllymaeki, Vesa; Aksela, Reijo
PATENT ASSIGNEE(S): Kemira Oyj, Finland
SOURCE: PCT Int. Appl., 25 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2005023873 | A1 | 20050317 | WO 2004-FI523 | 20040910 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| FI 2003001301 | A | 20050312 | FI 2003-1301 | 20030911 |
| FI 116142 | B1 | 20050930 | | |
| CA 2533553 | A1 | 20050317 | CA 2004-2533553 | 20040910 |
| EP 1664125 | A1 | 20060607 | EP 2004-767037 | 20040910 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK | | | | |
| BR 2004013432 | A | 20061010 | BR 2004-13432 | 20040910 |
| US 2007073051 | A1 | 20070329 | US 2006-566975 | 20061207 |

PRIORITY APPLN. INFO.: FI 2003-1301 A 20030911
WO 2004-FI523 W 20040910

OTHER SOURCE(S): MARPAT 142:299721

AB An organic **starch** ester is prepared by mixing a **starch** material, such as natural **starch** or hydrolyzed **starch**, with an **ionic liquid** solvent to dissolve the

**starch**, and then treating the dissolved **starch** with an organic esterifying agent, such as C1-11 carboxylic acid, to form an organic **starch** ester, and subsequently separating the organic **starch** ester from the solution by adding a non-solvent , such as alcs., ketones, and acetonitrile, to the **starch** ester solution **Microwave** irradiation and/or pressure can be applied to assist the dissoln. and esterification. Thus, native barely **starch** was dissolved in ionic 1-butyl-3-methylimidazolium chloride and reacted with acetic anhydride, followed by quenching with ethanol to receive **starch** acetate.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 8 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:158715 CAPLUS
DOCUMENT NUMBER: 142:242565
TITLE: Dissolution and delignification of lignocellulosic materials with **ionic liquid** solvent under **microwave** irradiation
INVENTOR(S): Myllymaeki, Vesa; Aksela, Reijo
PATENT ASSIGNEE(S): Kemira Oyj, Finland
SOURCE: PCT Int. Appl., 25 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2005017001 | A1 | 20050224 | WO 2004-FI476 | 20040813 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| FI 2003001156 | A | 20050216 | FI 2003-1156 | 20030815 |
| FI 115835 | B1 | 20050729 | | |
| CA 2532989 | A1 | 20050224 | CA 2004-2532989 | 20040813 |
| EP 1654307 | A1 | 20060510 | EP 2004-742219 | 20040813 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK | | | | |
| BR 2004013435 | A | 20061010 | BR 2004-13435 | 20040813 |

PRIORITY APPLN. INFO.: FI 2003-1156 A 20030815
WO 2004-FI476 W 20040813

OTHER SOURCE(S): MARPAT 142:242565

AB Wood, straw, and other natural lignocellulosic materials can be dissolved in an **ionic liquid** solvent under **microwave** irradiation and/or under pressure, and **cellulose** and other organic compds., such as lignin and extractives, can also be separated from the solution

by precipitating with non-solvent , such as water, alcs., ketones, and ethers, of
**cellulose**. Thus, plywood sawdust was dissolved in
1-butyl-3-methyl-imidazolium chloride under **microwave** irradiation
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 9 OF 9 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:653978 CAPLUS
DOCUMENT NUMBER: 132:219083
TITLE: Attempted dissolution of "insoluble organic matter" from Methanococcus jannaschii and Rostherne Mere (UK) sediment with 1-ethyl-3-methyl imidazolium chloride/aluminum (III) chloride
AUTHOR(S): Sutton, P. A.; Lewis, C. A.; Patell, Y.; Seddon, K. R.; Rowland, S. J.
CORPORATE SOURCE: Petroleum and Environmental Geochemistry Group, Department of Environmental Sciences, University of Plymouth, Plymouth, PL4 8AA, UK
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AB Despite its geochem. significance, sedimentary macromol. organic matter, including biomol. material, which is insol. in non-oxidizing acids, bases and normal organic solvents (insol. organic matter, IOM), and which is termed kerogen when it occurs in Ancient sediments, has only been characterized in a limited number of elegant chemolytic studies. This owes largely to its insoly., which reduces the number of anal. methods applicable for structural elucidation. In the present, preliminary study we report our attempts to dissolve IOM in order to make it more amenable to anal. by conventional methods. IOM was isolated by sequential removal of soluble matter from Methanococcus jannaschii (2.8% ± 0.3% dry weight IOM, n = 3) and from a Recent lacustrine sediment (Rostherne Mere, UK, 11-15% dry weight IOM). For the sediment, the sequential removal of proteins, **carbohydrates**, lipids and minerals was monitored by examination of the insol. residues by pyrolysis-gas chromatog./mass spectrometry (py-GC/MS) and solid state NMR spectroscopy (ss-NMR). IOM samples were then treated with an **ionic liquid**, 1-ethyl-3-Me imidazolium chloride/aluminum (III) chloride ([emim]Cl/AlCl3). A synthetic dendrimer was also treated with **ionic liquid** in order to assess any effects on a fairly high mol. weight (1075), but non-macromol., substrate of known structure which contains chemical moieties which have been identified in kerogens by chemolytic studies (e.g. aromatic rings, ether and ester linkages, and methylene groups). **Ionic liquid**/sample mixts. were **microwave** heated, hydrolyzed, filtered and both non-aqueous soluble retentates and aqueous filtrates collected. Retentates and aqueous filtrates were then extracted with organic solvents. The insol. matter in the retentates was examined by py-GC/MS. The organic solvent exts. of the retentates and of the aqueous filtrates were investigated using solution NMR, much of which remains to be identified by interpretation of the spectroscopic data. However, some preliminary observations can be made. Interestingly, the proton NMR spectrum of the dendrimer filtrate extract showed that **ionic liquid** treatment had substantially changed the dendrimer structure. Over 30 new alkyl resonances appeared in

the aliphatic region of the spectrum (δ 0.5-4.0 ppm), and the pattern of aromatic resonances (δ 6.3-8.2 ppm) was also changed. It is suggested that Friedel-Crafts-type alkylations could have been promoted by the aluminum (III) chloride moiety of the [emim]Cl/AlCl3. When applied to unknown IOM from bacteria and sediments it appears that the addition of **ionic liquid**, heating and hydrolysis also chemical alters these substrates, since some previously solvent-insol. organic matter became soluble The proton NMR spectrum of the IOM filtrate extract of M. jannaschii contained predominantly aliphatic resonances with only one aromatic and two alkenic resonances. Proton NMR spectra of the sedimentary IOM filtrate exts. were also dominated by aliphatic signals, in contrast to solid state NMR anal. of the IOM before treatment, again suggesting alkylation of the original matter. If the mode of action of **ionic liquid** treatment is reproducible and can be better understood, this procedure may play a part in the further characterization of IOM, but simple dissoln. of IOM appears not to occur, judging from these preliminary expts.

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